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The null-prep phenomenon in second language acquisition

Klein, Elaine Cohen, Ph.D.

City University of New York, 1990

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A

**THE NULL-PREP PHENOMENON
IN SECOND LANGUAGE ACQUISITION**

by

ELAINE C. KLEIN

**A dissertation submitted to the Graduate Faculty in
Linguistics in partial fulfillment of the requirements
for the degree of Doctor of Philosophy, The City
University of New York.**

1990

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This manuscript has been read and accepted for the Graduate Faculty in Linguistics in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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Abstract

THE NULL-PREP PHENOMENON IN SECOND LANGUAGE ACQUISITION

by

Elaine C. Klein

Adviser: Professor Janet Dean Fodor

In the process of acquiring pied-piping or preposition stranding, adult L2 learners of English often omit the required preposition. This study explores this "null-prep phenomenon" to test a Universal Grammar (UG) framework as an explanation for the acquisition of L2 grammars. Specifically, the purpose of investigating null-prep is to examine the claim that adult learners, like children learning their first language, are guided by UG principles and parameters. According to this hypothesis, adult learners begin L2 acquisition by going back to the unmarked or initial state (S_0), or begin at the L1 value and reset their parameters to the L2 setting.

An experimental study of 196 adult learners of English, representing 18 different L1s, shows null-prep to be robust. In a grammaticality judgement and correction task, many subjects who demonstrate accurate knowledge of subcategorization for verbs requiring a preposition in a declarative sentence, leave out the preposition in the corresponding relative clause and/or question, regardless of the L1.

A cross-linguistic study also shows null-prep to exist in some of the world's languages. These languages require a preposition or postposition in the declarative, but (may) omit it in the related relative clause, though not in questions. In a linguistic analysis of null-prep, three parameters are posited to account for the construction and its related forms across

languages. It is argued that null-prep does not represent the unmarked setting of these parameters.

The study concludes that null-prep in L2 questions is a violation of UG core principles, and represents a challenge to markedness-based accounts of L2 acquisition as they are currently formulated. Second language learners are not beginning the acquisition of piping or stranding by going back to the UG initial state, nor do they seem to be starting from the parameter settings of their L1s. It is argued that UG can only be partially responsible for the null-prep phenomenon and that adult learning strategies may help to account for its occurrence in the L2 grammar.

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Chapter 1: Introduction

1.0 Overview

Many researchers in second language acquisition have been testing a principles-and-parameters model of acquisition for adult learners. That is, they are seeking to determine whether Universal Grammar (UG), the system of innate, constrained, parameterized principles which guide first language learners, is also responsible for the acquisition of second language (L2) grammars.

Within this framework, several studies have examined the acquisition of preposition stranding and pied-piping in English, with varying results. In some studies, L2 learners appear to begin the acquisition process with what has been claimed to be the unmarked setting of the parameter, pied-piping (hereafter, PiP or piping); in other studies, learners are shown to initially acquire preposition stranding (hereafter, PS or stranding), though it is generally held to be the more marked structure. Some researchers (notably, Mazurkewich, 1984; Bardovi-Harlig, 1987) have also reported that many adult second language learners of English begin this acquisition process by omitting the preposition from a WH question or a relative clause which requires either a PiP or a PS construction. Thus, these learners frequently produce such WH questions (Q) and relative clauses (RC) as:

- (1) Q: *Which house did she live last year?
 (2) RC: *That's the house (that, which) she lived last year.

instead of the PiP/PS alternatives,

Pied-Piping:

- (3) Q: In which house did she live last year?
 (4) RC: That's the house in which she lived last year.

Preposition Stranding:

- (5) Q: Which house did she live in last year?
 (6) RC: That's the house (that, which) she lived in last year.

These previous studies on the L2 development of PiP and PS clearly show the existence of what I shall call the "null-prep" phenomenon.¹ However, no study to date has considered this construction as a potentially important aspect of the data. Researchers have misinterpreted it or dismissed it (see below) and, therefore, have not attempted to account for it by their parameterized models of acquisition.

In this dissertation I will report a study which confirms the existence of an early null-prep stage in the L2 development of pied-piping/preposition stranding, and show that it does indeed bear on important theoretical questions in linguistic theory and second language acquisition.

Within markedness theory, it is generally assumed that PS is a marked construction, and that PiP is relatively unmarked (Van Riemsdijk,

¹ It will be convenient to use the general term "null-prep" to refer to the whole (omitted) PP, as well as the "missing" preposition itself. Where the difference matters, I will distinguish them more precisely.

1978; Hornstein and Weinberg, 1981). The focus of L2 studies, then, has been to determine whether these generally accepted markedness values correlate with acquisition order.² This is of considerable theoretical interest because it is claimed that a child learning her first language will begin with the unmarked parametric setting and will switch to a marked setting on the basis of positive evidence from the input. If L2 learning proceeds in this same order, it could be taken as evidence that second language learners, like L1 learners, have access to UG principles.

The early appearance of null-prep would be a potential problem for a parameterized account of language acquisition if it is not an unmarked structure, at least less marked than PiP or PS. In fact, *prima facie* it appears that null-prep should be judged to be highly marked, on the grounds that it is typologically rare, and, also, that it seemingly violates the universal principle of recoverability of deletion (Chomsky, 1964; Chomsky, 1965; Chomsky and Lasnik, 1977).

It must be remembered, however, that parametric values relate not to particular constructions, but to the broader principles which underly them. Judgements of markedness therefore cannot properly be made without a full analysis of the constructions concerned, which identifies the principles and parameters that underly them. In this dissertation it will be shown that null-prep is a structure which results from the settings of three parameters, and that for one of these parameters the relevant setting is the marked one. The implications of this analysis provide a challenge to UG accounts of second language acquisition, as they are usually formulated.

² A more detailed explanation of claims made about the relationship between UG principles and acquisition order appears in Chapter 2.

Until this time, null-prep has not been seriously considered as a stage in L2 linguistic development. Researchers studying second language acquisition (SLA) have denied that the null-prep construction represents a genuine linguistic hypothesis on the part of L2 learners. If it were a true L2 hypothesis, then it would follow that learners are guided by UG only if null-prep were relatively unmarked. .

Similarly, there has been little attention given to the construction in studies of first language (L1) acquisition. A preliminary review of L1 acquisition data indicates that null-prep may also appear in early stages of child language in English (Hildebrand, 1987; Erickson, 1984). Evidence of null-prep as an initial stage in L1 would pose an even more serious threat to the role of UG in guiding language acquisition. One can imagine that L2 learners, especially after the critical period (see Lenneberg, 1967), are unable to access the ordering of hypotheses provided by UG. But how could the theory of markedness explain that a native child, in the absence of evidence, begins by choosing a highly marked structure?

It would be worse still, of course, if null-prep were not a natural language form at all, for then it would constitute a violation of *continuity* (see Pinker, 1984). It has been generally claimed (for example, see Adjemian, 1976; Liceras, 1985; White, 1987) that, in both L1 and L2 acquisition, each stage of a learner's linguistic development constitutes a possible natural language. There are reports in the linguistic literature which indicate that null-prep does not violate this requirement.

According to Thomas (1969), at least one language, colloquial Brazilian Portuguese, requires a full PP in simple declarative sentences,

but allows deletion of the preposition in a relative clause. Thomas (1969:302)³ gives the following examples:

- (7) Falam da môca.
'(They) talk about-the girl.'
- (8) Aquela é a môca que falam tanto.
That is the girl (about) which (they) talk so much.

Tarallo and Myhill (1988:62) similarly report null-prep in Brazilian Portuguese, remarking that while unacceptable "according to the norms of Portuguese grammar ... (it is) highly productive in speech," as in:

- (9) O homem que eu falei era Americano
The man that I spoke was American.

It will be shown in Chapter 4 that, although somewhat neglected in the literature, null-prep is a structure that also appears in other languages of the world as well as in L1 and L2 acquisition data. Its status as a natural language phenomenon will be examined, in search of an explanation for its appearance in English second language acquisition.

The null-prep construction in L2 acquisition has been dismissed on various grounds: as lack of accurate subcategorization knowledge (Bardovi-Harlig, 1987), or as the inaccurate mimicking of model test sentences (Mazurkewich, 1984). It may also be suggested that a second language learner's lack of a preposition in such structures as (1) and (2) is the result of a process whereby function words are left out of complex utterances in order to simplify them. However, we must question why a learner who has already acquired a particular preposition in another

³ I thank Bernard Comrie (personal communication) for bringing this source to my attention.

structural context would drop it in a PiP or PS question or relative clause; why the learner does not drop other functors in these syntactically complex constructions in order to "simplify" them;⁴ why the learner from an L1 where PiP is prevalent and unmarked does not utilize a one-to-one transfer strategy from the L1 and carry over the preposition into the L2.

There are also problems with the proposal that an omitted preposition in such constructions as (1) and (2) indicates a subcategorization error, that is, that the L2 learner has not yet determined that a particular verb requires a PP rather than an NP complement. In fact, the determination of a preposition following a verb is, in some cases, arbitrary or lexically-determined, and this pairing varies from one language to another. Therefore, subcategorization features are difficult for the L2 learner and this could explain the presence of null-prep in L2 data.

My investigation into the null-prep phenomenon will show, however, that this is not the case. It will be shown that null-prep is neither a subcategorization error, as Bardovi-Harlig suggests, nor the result of experimental design flaws, as Mazurkewich argues.⁵ Further, I will claim that it is not a performance error either, but that it is a genuine linguistic hypothesis that some L2 learners maintain well into the advanced levels of acquisition. The question, then, is why they do it.

The main focus of this dissertation will be to find an explanation for the phenomenon within the framework of a UG parameterized theory of grammar. I will show first that many L2 learners clearly exhibit null-prep

⁴I thank Ellen Broselow (personal communication) for this point.

⁵ In practice sentences, presented to subjects before Mazurkewich's actual test, examples were given using verbs with direct objects only. Mazurkewich suggests that subjects might have "modeled" their answers on these sentences, thereby omitting prepositions.

in the process of acquiring pied-piping and/or preposition stranding. I will then demonstrate that the null-prep construction must be admitted by universal grammar and is not just a curiosity of acquisition. Its proper linguistic description will be determined, as well as its markedness status, so that the implications for the relation between markedness and L2 learning can be clarified. The ultimate question, then, will be whether second language learners, like first language learners, rely on the options and rankings provided by UG to acquire the L2 grammar.

1.1 Hypotheses

In this thesis, I will argue that:

1. Null-prep represents a genuine linguistic hypothesis on the part of L2 learners.
2. Null-prep represents a legitimate natural language structure and, as such, must be incorporated into linguistic theory. This means that its proper linguistic characterization must be determined, including identification of the universal principles and parameters on which it draws.
3. Null-prep does not constitute the least marked hypothesis compatible with the data that L2 learners of English are exposed to, and hence some other explanation must be found for its widespread occurrence.

1.2 Outline of the chapters

Chapter two provides the necessary background for the specific claims of this thesis. Here, the theory of markedness is discussed, particularly the criteria which have been used to determine the relative

degree of markedness for linguistic structures. It is shown how markedness theory has been utilized as a framework in both L1 and L2 studies, particularly in research on the acquisition of pied-piping and preposition stranding. In reviewing this literature, problems in research design are discussed - problems which are avoided in the experimental study described in Chapter 3.

Finally, there is discussion of the appearance and potential significance of null-prep findings in prior studies, an aspect of the results of these studies which researchers had previously ignored. A pilot study is then described which suggests that null-prep is, indeed, a stage in the L2 acquisition process of acquiring pied-piping and preposition stranding. Since the results of this preliminary research bring into question some important linguistic and acquisition issues, it is suggested that these results need confirmation in a more formal and extensive study.

Chapter three describes an experimental study which confirms the tentative results of my pilot study. The results show that null-prep does appear as a fairly persistent stage in the L2 acquisition of pied-piping and preposition stranding among adult learners of English from varied native language backgrounds. It is shown that null-prep occurs regardless of the L1, and gradually recedes as PiP/PS is acquired. The appearance of null-prep, therefore, is not influenced by native language transfer. Also, it is general in the sense that it occurs across all the verbs and prepositions tested.

In order to investigate why L2 learners are choosing this option, it is important to know whether null-prep is a part of universal grammar, what its structural analysis may be, and whether a linguistic explanation can clarify the acquisition data. Chapter 4 serves this function.

In Chapter 4, the linguistic properties of null-prep are explored for two purposes: 1. To prove that null-prep is a natural language phenomenon; and 2. To provide a syntactic analysis of the structure in order to establish the parameter settings which result in a null-prep construction, in contrast to pied-piping and preposition stranding.

In this chapter, null-prep is first examined cross-linguistically. A survey of its occurrence across natural languages shows that it is exhibited in particular groups of languages which are classified typologically. Null-prep is then examined in more detail within two languages, Brazilian Portuguese and Modern Greek, and a single syntactic analysis is posited for both. It is claimed that this analysis is generalizable across the prepositional languages in which null-prep occurs, and perhaps for postpositional languages as well. The analysis does not hold for English, however, where the omission of prepositions, to the extent that it is grammatical, is a different phenomenon. In the concluding discussion, a parameterized account of the linguistic data is presented.

In Chapter 5, the acquisition results and the linguistic analysis are integrated for the purpose of offering explanations for null-prep in the L2 data. Several UG accounts of the acquisition data are discussed, as well as the problems involved with each alternative. To continue this area of inquiry, suggestions are offered for further linguistic and acquisition research.

Chapter 2: Background

2.0 Introduction

In this chapter, I will discuss the theory of markedness and how it has been used as a framework for both L1 and L2 acquisition studies. Studies of pied-piping and preposition stranding are reviewed, as a case in point. Results of some of these studies show that adult learners of English often begin the acquisition of PiP and PS by omitting the relevant preposition. My pilot research, reported in this chapter, confirms that this null-prep phenomenon represents an early stage in the L2 acquisition process.

2.1 The theory of markedness

As early as the 1930's (see Troubetzkoy, 1939), the notion of markedness was developed within phonological theory. It was intended to reflect an asymmetry of 'naturalness' between two members of a phonological opposition. While markedness theory began with a treatment of binary oppositions, it was gradually extended to more than two, and often several, related structures in a hierarchical relationship, both in phonology and syntax (see, for example, Keenan and Comrie, 1977, for their noun phrase accessibility hierarchy in relative clauses). In syntactic theory, markedness became associated with several different concepts and criteria: a) frequency and typological relationships of particular structures across the world's languages, b) the degree to which particular structures within a language conforms to universal principles and parameters of UG, c)

learnability considerations concerning the acquisition of languages which stand in subset relationships.

Moravcsik and Wirth (1986) present an overview of varied interpretations of markedness as they exist in current literature. Central to all markedness claims, they maintain, is a three-way correlation between familiarity, variability, and complexity. That is, the more familiar an object, an event, a sound, or a structure of language, the more variation we perceive within it, and the less complex it will be. Greenberg (1966) suggests three criteria to determine the "unmarked" and "marked" member of a pair of linguistic forms:

1. distribution
2. syntagmatic structure
3. paradigmatic complexity

Moravcsik and Wirth (M&W) note that, in most views of markedness today, one or more of these criteria are still utilized. A crucial claim of markedness theory, they argue, is that

various tests that demonstrate the asymmetry between the two members of the opposition will have converging results: Once one of the two members has been shown to be marked by one criterion...all other relevant tests will also converge to select that entity as the marked member of the opposition.
(1986:3)

M&W discuss, however, the fact that there is some disagreement concerning four dimensions of markedness:

1. Which entities the theory should govern (i.e. markedness relations might be claimed to hold for phonological oppositions alone, or

alternatively, as a comprehensive principle governing both phonological and syntactic oppositions);

2. Which specific criteria should be used to determine markedness relations;
3. Which domain the theory should govern (i.e., "some versions of markedness theory may claim markedness assignments to be universal while others may posit that their validity is bound by individual languages or classes thereof" (p. 4));
4. How much significance markedness theory should be accorded within an account of linguistic relationships (i.e. one view may hold markedness to be a comprehensive explanatory theory, while another may view it as a "low-level theory" within a larger domain).

Markedness claims as they relate to language acquisition are a central topic of investigation in current research. However, the results of acquisition studies evoke various interpretations due to the differing theoretical views of markedness just noted. It must be emphasized that there are obvious and unresolved difficulties in defining markedness, despite the widespread conviction that such a phenomenon exists; in particular, that various criteria do not always give the same outcome. Of Greenberg's three criteria cited above, the first two are utilized most prevalently in syntax research today. These will be discussed in turn, to clarify the frameworks in which the acquisition studies reported below have been conducted.

The distributional criterion of markedness concerns the patterns of occurrence of particular structures across natural languages. This typological characterization of markedness takes a structure X to be more marked than a structure Y if:

- a. X is less frequent cross-linguistically than Y
- b. the presence of X in a language implies the presence of Y, but not vice versa.

Hyltenstam (1987) suggests [a.] as the weaker form, and [b.] as the stronger form of typological markedness. He argues:

Since the implicational definition takes more facts into account than any of the other criteria, it can be considered to give a more narrow, and therefore stronger, definition of the notion of markedness." Thus, while [b.] implies [a.], the reverse does not necessarily hold.
(1987:59)

It will be argued below that cross-linguistic frequency is indeed an unreliable criterion for markedness.

There can also be language-specific asymmetries of distribution, although this is not frequently discussed in the literature. Moravcsik and Wirth remark that "it is of course conceivable that identical pairs of terms show variable markedness polarization in different languages; the assignments need not be universal" (1986:9). As a case in point, Hyams (1987:28) argues that "inflectional systems (and perhaps other properties of grammar as well) have a variable status across languages". For example, she found that English-speaking children acquired the inflectional system of their native language relatively late in contrast to Italian children. She argues that this reflects the fact that English inflection is a peripheral (marked) aspect of the language, while Italian inflection is a core (unmarked) property.

The language-internal notion of markedness is more often related to the relative complexity of structures within languages. It has been suggested that those structures which strictly adhere to universal

principles are within core grammar; core grammar is optimally learnable and, therefore, unmarked. However, in order to deal with variation across languages, a range of parameters was proposed within the core, with parametric values ranked in order to account for subset problems (see below) in language acquisition. Thus, degrees of markedness within the core were acknowledged. However, as it began to appear that the principles and parameters approach was too restrictive to account for the full range of natural language variation, it was also necessary to acknowledge the existence of a *periphery* of less orderly constructions, which count as more marked than the most marked values of the core. Following Chomsky (1981), Koster (1981:567) states: "knowledge of language is seen to be organized in different layers from the practically invariant core to the extreme periphery.... Language learning, in this view, is the fixing of the parameters of core grammar, plus the addition of marked rules up to the periphery". In later work, Chomsky (1986) explicitly characterizes three types of markedness, including markedness within the periphery:

The distinction between core and periphery leaves us with three notions of markedness: core versus periphery, internal to the core, and internal to the periphery. The second has to do with the way parameters are set in the absence of evidence. As for the third, there are, no doubt, significant regularities even in departure from core principles (for example, in irregular verb morphology in English) and it may be that peripheral constructions are related to the core in systematic ways, say, by relaxing certain conditions on core grammar.

(1986:147)

According to Chomsky's theory of Universal Grammar (UG), then, the child is biologically endowed with innate knowledge of universal principles within core grammar. Some of these innate principles are

innately parametrized; that is, they exhibit certain limited choices, which define the dimensions of variation permitted across natural languages. The periphery, on the other hand, deviates from this core and is expected to show considerably greater variation across languages, and be more difficult to acquire.

The principles-and-parameters model not only describes how language differences occur, but offers an explanation of how the learning problem may be simplified for the child. The different values of a parameter are assigned relative markedness values, and Chomsky (1981:8) assumes that children initially set the value of a parameter at its unmarked setting (except for "complicating factors", as indicated below). A child will reset this parametric value to a more marked setting solely on the basis of positive evidence from the input (i.e. a sample of well-formed sentences). Thus, the fully universal aspects of language do not have to be learned at all; only the values of the parameters need to be determined by the particular language a child hears.

This parametric model of markedness is claimed to have developmental consequences for the child in terms of real-time acquisition. Chomsky (1981:9) states, "We would expect the order of appearance of structures in language acquisition to reflect the structure of markedness..." Chomsky further notes, however, that "there are many complicating factors: e.g. processes of maturation may be such as to permit certain unmarked structures to be manifested only relatively late in language acquisition, frequency effects may intervene, etc."

Berwick (1985) has provided a formalization of such an account of language acquisition with the Subset Principle. This principle states that when two different languages result from two different settings of a

parameter, L-A being a proper subset of L-B, then the unmarked setting will be the one giving the smaller, more restricted, language L-A.¹ This is the case because a single example of the relevant structure in the input of L-B is enough to trigger a resetting of the value to its L-B option, whereas positive evidence would not suffice to reset an L-B value back to that of L-A. In the latter case, negative evidence would be needed to show that of the two options available, one is incorrect for language L-A and must be eliminated. It is argued that such evidence is not readily available to the child (see, for example, Pinker, 1984; Grimshaw and Pinker, 1989).

With the Subset Principle, first language acquisition researchers have been provided with a framework within which to test the acquisition of particular structures in syntax (see Wexler and Culicover, 1980; Wexler, 1981; Roeper, 1988). Recent studies have included work on the 'pro-drop' parameter (Hyams, 1983), on binding principles and governing categories (Solan, 1987; Jakubowicz, 1984; Manzini and Wexler, 1987), and on WH constructions (Krause and Goodluck, 1983; Hildebrand, 1987).

Similarly, second language researchers have begun to examine the markedness framework as an acquisition model. Studies are being conducted involving the L2 acquisition of various parametric options and particular structures. Of special interest here are those studies related to the evaluation of markedness theory and, in particular, studies of the L2 acquisition of pied-piping (PiP) and preposition stranding (PS). This

¹ It should be noted that values of a parameter don't always determine languages in a subset relation. In that case, the values might be ranked for markedness or they might not. There is no logical argument from learnability for markedness rankings except for subset cases.

alternation has been utilized in current research because of generally accepted markedness values attributed to the two structures.

It has been generally claimed on grounds of frequency that pied-piping is less marked than preposition stranding, which is relatively rare in the natural languages of the world (Van Riemsdijk, 1978). While pied-piping is common, preposition stranding, according to Van Riemsdijk, is limited to Indo-European languages, in fact primarily to English and the Scandinavian languages. Dutch allows preposition stranding but restricts it to a particular set of "R" pronouns. Slavic languages do not allow PS, except for Macedonian, and Hornstein and Weinberg (1981) report that, in general, Romance languages do not allow it, while they do have PiP. Implicationally, it seems to be the case that the languages which have PS also have PiP, while the reverse does not hold. That is, the Scandinavian languages have both options, while many piping languages, including the Romance group, Hebrew, and Greek, allow no other option in movement constructions. Thus, typologically, PiP has been considered the unmarked form, and PS the marked form.

It might be proposed then, that UG includes a parameter one of whose settings defines PiP, while the other setting determines both PiP and PS. Clearly the Subset Principle would deem the more restricted PiP setting to be the unmarked value. That is, in the absence of negative input, learnability considerations require that a child must have the PiP setting of the parameter at birth (or, under a weaker UG hypothesis, upon first encountering evidence of PiP in the input). If the PiP and PS setting were the unmarked case, the child would need negative evidence (i.e. "PS sentences are ungrammatical") to reset to the correct parametric value in a PiP language. Thus, it would be predicted that PiP should emerge first

in L1 acquisition, and that PS constructions will never be exhibited by learners of PiP languages.

It may not be the case, however, that this is how parameter values present themselves to the learning mechanism. It is a central tenet of the Government and Binding principles and parameters theory that a syntactic construction represents the interaction of many different principles, each of which expresses a generalization that goes beyond any one construction. Thus, what we observe as PiP and PS may be a consequence of the setting of broader parameters responsible for other phenomena as well. There may be no parameter with values PiP and PS. This point will be developed in detail when we study these and related structures in more depth in Chapter 4. Meanwhile, for convenience, I shall write as if there were a single PiP/PS parameter.

On internal linguistic grounds, PS is also usually considered to be a marked form (but see Stowell, 1981 and Kayne, 1981 for other views of the phenomenon). Several different explanations may be offered, depending on which principles are assumed to be applicable to the two constructions. In PS, there is extraction of a wh-NP from a PP, leaving the preposition stranded; the preposition must properly govern and case-mark the empty category which is the trace of the moved element². Van Riemsdijk (1978) argues that PP is a bounding node, making PPs islands out of which extraction is impossible. Pied-piping, on the other hand, is unexceptional since the entire PP constituent is moved and no PP boundary is crossed. Compare (1) and (2):

² Kayne (1981) proposes that in many languages prepositions do not qualify as proper governors.

- (1) PS: [Who] was Emily talking $_{pp}$ [to e]
 (2) PiP: [To whom] was Emily talking $_{pp}$ [e]

Hornstein and Weinberg (1981), following Van Riemsdijk, argue that PS can come about only as the result of a language-specific rule of Reanalysis. The need for this additional rule would account for "the marked nature of preposition stranding" (p. 57). They also argue for a universal filter which prohibits an oblique NP trace:

$$*[_{np} \quad e \quad] \\ \text{oblique}$$

Thus, Hornstein and Weinberg (H&W) hypothesize the following process: In their example, the structure in (3a) derives from the underlying form in (3b):

- (3) a. Who did John talk to Harry about?
 b. [s' [c] [s John [$_{vp}$ [v talk] [$_{pp}$ to Harry] [$_{pp}$ about wh]]]

If wh were extracted from the lower PP, a subadjacency violation would occur, since the wh-element would have to cross more than one bounding node (here, a PP and an S) in order to move to COMP. In English (3a) can be derived avoiding this subadjacency violation, because there is a rule of Reanalysis. By this rule, a PP which is an argument of the verb (i.e. dominated by the VP node) can be incorporated into the preceding V making it a complex V. Thus, Reanalysis applies to (3b) yielding (4):

- (4) [s' [c] [s John [$_{vp}$ [v talk to Harry about] wh]]]

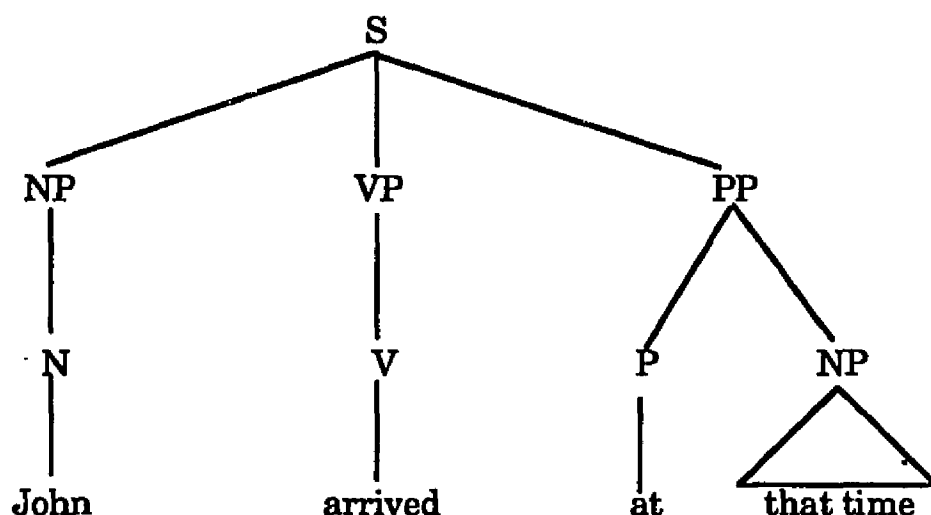
Wh-movement can now apply and the wh-trace can be case-marked (objective) by its (complex) governing verb; thus a violation of the universal filter is avoided, yielding (5):

(5) [_S' [_C who] [_S John [_{VP} [_V [talk to Harry about]] t]]]

_{obj}
_{nom}
_{obj}

This construction stands in contrast to one with an adjunct PP which is dominated by an S node and, whose P therefore cannot be absorbed into the preceding V. Thus, (6a) shows an adjunct PP, where Reanalysis cannot apply:

(6) a.



According to H&W, this explains why (6a) will not permit stranding, as shown in (6b):

(6) b. *What time did John arrive at?

Here the trace is marked oblique by casemarking rules, and the universal filter which prohibits an oblique NP trace makes the sentence ungrammatical. This contrasts with acceptable examples of stranding

involving arguments, such as *Which game did John speak about?* Other examples which show that stranding is not permitted in adjuncts, include (7) in English and (8) in Dutch:

(7) *What inning did the Yankees lose the ball game in?

(8) *Waar heeft hij zyn boek na gepubliceerd?
 What have he that book after published
 'What time did he publish the book after'

It must be noted, however, that in some dialects (of English, at least) the adjunct examples presented as deviant by H&W are perfectly acceptable, as are the following:

(9) What day did she take the test on?

(10) Which country do they like to ski in?

(11) What time is the store open until?³

Such examples suggest that Hornstein and Weinberg's analysis needs some modification. Whatever the mechanism that underlies PS, it cannot be one which entails an absolute prohibition against stranding of adjunct prepositions.

³ By H&W's criteria, the examples given would all appear to contain PP adjuncts; that is, time and place adverbials dominated by S. In addition to these examples, I have recorded the following in the speech of educated native speakers of English. Though the criteria are not as precise as could be wished, it is arguable that these examples similarly involve time and place (or direction) adverbials:

- i. What time do I have to clean my room by?
- ii. Which gate is he going to come in at?
- iii. What streets do you stop at?
- iv. He dug the pit he finally fell into.
- v. It was an occasion I would have done anything for.
- vi. I emerged from the bedroom we had retreated to.
- vi. the century/house I was born in
- vii. the streets I grew up on

Despite the disagreements and unresolved problems in the linguistic analysis, acquisition researchers have generally followed linguists in assuming the marked status of stranding, and the correspondingly unmarked status of pied-piping. The distributional evidence for this classification seems very strong. The PiP/PS alternation differs in this respect from many other syntactic phenomena, where relative markedness values are harder to determine. Thus PiP/PS provides an unusually secure basis for testing markedness theory in second language acquisition. Null-prep, on the other hand, has not been considered a value on the relevant parameter in any analysis in the acquisition literature. This is probably because the structure has rarely been discussed in linguistic research, particularly with regard to prepositional languages. Therefore, L2 acquisition researchers, informed by theoretical linguistics, have tested markedness-based accounts of PiP and PS and have disregarded any null-prep data in their results. I will argue that this is a serious mistake. Null-prep does constitute a genuine linguistic option. Also, a three-value parameter provides a much richer test of the application of markedness theory to L2 acquisition, since there is a much lower probability that a 3-way markedness ranking prediction could be satisfied by chance, i. e. for irrelevant reasons.

2. 1. 1 The theory of markedness in second language acquisition

Claims invoking UG as the basis for second language acquisition are in the process of serious investigation. For example, L2 researchers have tested the acquisition of relative clauses (see Gass, 1979), negation (see Wode, 1984), the pro-drop parameter (see Phinney, 1987), binding

principles (see **Finer and Broselow, 1986**), as well as other constructions involving UG principles. There have been several studies of pied-piping and preposition stranding and these will be extensively discussed below.

The findings of some of these studies appear to support a UG role in second language acquisition. However, other researchers have argued against any strong UG claims for L2 acquisition. **Clahsen and Muysken (C&M) (1986)**, for example, compared the acquisition of word order by children and adults learning German as their L1 and L2 respectively, and found important differences between the two groups. For instance, they found that at the earliest stages of development, children acquire the required SOV pattern for German subordinate clauses. They also acquire the "verb-second constraint" for main clauses very suddenly,⁴ and simultaneously acquire related "surface structure patterns which fall under the verb-second constraint."⁵ Among these children, C&M also found a direct correlation between the acquisition of the verb-second constraint and the attainment of the subject-verb agreement system. Adults learning German as an L2, on the other hand, start out with an SVO system, regardless of the L1, and maintain this pattern incorrectly for subordinate clauses over an extended period of time; importantly, related patterns for verb-second are not acquired simultaneously, as they are among German children, but are learned as "separate acquisitional tasks in L2 learning, defining different stages of development." (p. 7) In

⁴ Clahsen and Muysken maintain that the frequency of use of verb-second patterns increases, within one month, from 40% to 90% among children learning German as their L1.

⁵ These include the inversion of subject and verb and the splitting of separable verbal prefixes.

addition, the results show that the use of agreement markings among adult learners, does not correlate with changes in verb placement; in contrast to L1 learners, these phenomena develop independently for adult L2 learners.⁶ Similar differences between L1 and L2 were also found in studies of German negation (see Clahsen, 1988).

C&M (1989) argue that constructions of the child in the various stages of L1 development always represent possible grammars (i.e. obey universal constraints). However, adult second language systems are not necessarily consistent with UG. C&M conclude that:

the observed differences between L1 and L2 learning can be explained by assuming that child L1 acquisition falls under the parameter theory of language development, whereas the acquisition strategies used by adults in L2 development may be defined in terms of principles of information processing and general problem solving.

(p. 23)

Felix (1987) argues that differences in L2 acquisition (as compared to L1 acquisition) are due to the existence of "competing cognitive systems" for adults. In contrast to children acquiring an L1 where a language-specific module (=UG) is in operation, adults have a competing semantically-based module which relies on problem-solving for L2 acquisition. This module is inferior to UG and accounts for the fact that native-like proficiency is rarely achieved among second language learners.

It is well-known that there is variability in the findings of studies investigating the role of UG in L2 acquisition, as well as in the

⁶ A debate is presently taking place regarding the interpretation of these findings (see du Plessis et al., 1987, and Clahsen and Muysken, 1989). I shall not attempt to resolve the issue here.

interpretation of these findings. Continued investigation of markedness claims in second language acquisition is clearly needed to determine the degree to which such claims can be supported. Two general interpretations of the role of markedness in L2 acquisition have been advocated in recent studies: the Developmental Hypothesis and the Transfer Hypothesis. Note that both interpretations assume that L2 learners have access to UG.

The Developmental Hypothesis claims that the adult learns the L2 exactly as the child does the L1. That is, the L2 learner still has direct access to UG and starts with the parameter set at the unmarked value or the initial state, S_0 . The learner's L1 will not interfere with this process.

In terms of PiP and PS, then, this hypothesis suggests that L2 learners of English would choose the unmarked PiP as their initial hypothesis, and only later learn the marked PS form. This would hold whether the learner's L1 was Spanish (a PiP language), Swedish (a PiP/PS language) or Inuktitut (a language without prepositions).

The Transfer Hypothesis claims that L2 learners approach the L2 with their parameters set to the values appropriate for their L1, and must reset these parameters to accurately acquire the target language. The ease or difficulty with which a given L2 structure is acquired will depend on the relationship between the settings for that structure in the two languages. For example, the Markedness Differential Hypothesis of Eckman (1977) predicts the relative ease/difficulty of acquisition based on the markedness value of a structure in the L2 compared to the L1. Eckman argues that,

1. Structures in the L2 that are different from the L1 and more marked will be difficult to acquire. The degree of difficulty will correspond to the

relative degree of markedness of the structure in the L2 as compared to the L1. Thus, it would be difficult to reset a parameter from an unmarked to a marked value. Transfer from the L1 will (incorrectly) take place when the structure is more marked in the L2.

2. Structures in the L2 that are different from the L1 but not relatively more marked will not be difficult to acquire. It is implied, here, that in such cases, learners do not transfer their L1 settings, but return to the initial (unmarked) setting with relative ease.

Eckman's second claim cannot be reconciled with the Subset Principle, if moving from a marked L1 construction to an unmarked L2 construction constitutes moving from a larger language to a smaller one; without negative data, this would not be possible. Eckman's first claim is also unconvincing since it seems to imply that L2 learners cannot readily utilize positive evidence in the input to reset parameters.

Other researchers (Kellerman, 1979; Flynn, 1984; Liceras, 1986; Phinney, 1987) have presented empirical results indicating that the L1 parameter setting will transfer to the L2. Some suggest, like the developmental hypothesis, that L1 transfer will take place in the case of an unmarked L1 form, but there will be little or no transfer when the L1 structure is marked. If a marked item is initially transferred, it will be eradicated easily. (See Liceras, 1986, for test results supporting this claim. Further details are reported in section 2.2.1.) Tarallo and Myhill (1983) and White (1986) show, to the contrary, that the marked case may be transferred and (incorrectly) maintained. White predicts that the marked case might not only show up in the initial stages of the interlanguage, but:

...it may also be more likely to persist, to remain as a candidate for 'fossilization'...In situations like these, the learner has had positive evidence in L1 for a marked setting. He has, therefore, to notice the absence of some construction in L2, or to be able to view the L2 data totally divorced from his L1 experience.

(1986:314)

In section 2.2, the application of Liceras' and White's hypotheses to PiP/PS acquisition will be reviewed; the results have been unclear.

Finally, Zobl (1983) suggests that the criterion determining whether there will be transfer, concerns the relative "obscurity" of an L2 structure; that is, if the learner thinks an L2 rule is obscure (i.e. rare or unclear), s/he will transfer the L1 form. Thus, transfer is not fixed, but used only as an "auxiliary measure" until an L2 structure can be accurately understood and acquired.

This is related to the position of Kellerman (1983), who argues for a psycholinguistic conceptualization of markedness for adult L2 learners. He suggests that learners "perceive" what is marked in their L1. This perception may be based on such notions as a structure's relative obscurity, difficulty, or rarity, and may have nothing to do with its formal linguistic or formalized markedness value. Psycholinguistically marked structures in the L1 will not be transferred, according to Kellerman. For example, Kellerman reports a study by Wode (1978) in which German and Norwegian children learning English readily transferred unmarked structures from their L1s such as:

(12) Marilyn like no sleeping

However, children whose L1s were Taiwanese or Japanese, where the negation structure is "typologically more remote" (p. 115), did not evidence transfer from their first languages.

This psycholinguistic notion of markedness may well provide our first clue to the problems involved in pied-piping and preposition stranding studies in SLA involving English as the L1 or the L2. It could be the case that English speakers perceive PiP as the marked, rather than the unmarked structure (see discussion of Rudin, 1986, in section 2.2.2), and that L2 learners of English do likewise because of the frequency of PS, and the relative infrequency of PiP, in the spoken language. In fact, as mentioned earlier, cross-linguistic and intralinguistic markedness ratings may not always be parallel. PiP and PS in English may be such a case. That is, though PS is universally marked, it may be unmarked in English. As evidence for this, we may note the existence of structures in English which permit stranding, but not piping. Examples include the following:

- (13) a. the house that she lives in.
b. *the house in that she lives
- (14) a. the city where/that/which she is from
b. *the city from where/that/which she is

In (13) there is a constraint against the preposition occurring in COMP with the complementizer *that*. In (14), there appears to be a constraint against fronting a PP complement of the copula [be]. Pied-piping is also prohibited in most free relatives:

- (15) a. I understand what/whatever you're talking about.
b. *I understand about what/whatever you're talking.

Of course there are also restrictions on stranding in English. These appear to involve some (not all) prepositions in adjunct constructions:

- (16) a. a process by which they are discussed with the Board
b.*a process which they are discussed with the Board by
- (17) a. the extent to which some people will lie
b.*the extent which some people will lie to
- (18) a. the pride with which she did her work
b.?the pride which she did her work with

However, as noted earlier, stranding in English temporal and locative adjuncts, contrary to the claims of Hornstein and Weinberg, appears to be gaining wider acceptance. There also appears to be a related decrease in piping; in some colloquial dialects it is rarely used, if at all. Such evidence may lead to the argument that piping may be perceived (correctly or incorrectly) by native speakers as the marked form and stranding the unmarked form in English.

In the following section, I will show that such problems confound studies that attempt to use these structures to test the markedness hypothesis, especially when English is the target language. The developmental process of acquiring PiP and PS, however, illuminates the null-prep phenomenon which, in turn, can shed more light on the role of markedness in language acquisition.

2.2 Pied-piping and preposition stranding in L2 acquisition

The pied-piping (PiP) construction is repeated here as (19), and the preposition stranding (PS) construction as (20):

(19) Q: a. In which house did she live last year?

RC: b. That's the house in which she lived last year.

(20) Q: a. Which house did she live in last year?

RC: b. That's the house (that, which) she lived in last year.

Notwithstanding the issues just raised concerning the status of these structures in English, the alternative constructions in (19) and (20) have been a source of study in the markedness literature of second language acquisition. This is because of generally accepted cross-linguistic markedness relations between them, as discussed in the previous sections. It is generally agreed that the markedness values of these constructions are as shown:

PiP = UNMARKED
PS = MARKED

Such unanimity has influenced second language researchers to utilize these constructions to test the predicted relationship between UG and acquisition, either in its weaker (transfer) or stronger (developmental) form.

2. 2. 1 Experimental data on pied-piping and preposition stranding in second language acquisition: studies of languages other than English as L2

Several SLA researchers have investigated the interaction of UG and transfer from the L1 by testing the acceptance of PS by English speakers learning a variety of foreign languages which do not allow the marked structure. This situation, where the learner goes from the less restricted L1 to the more restricted L2, provides the only case whereby one can separate a developmental claim from a transfer hypothesis. White notes:

In the developmental view, such a situation provides no occasion for the occurrence of marked forms in the interlanguage. The learner's initial hypothesis will be that unmarked is required, and this will remain the learner's initial hypothesis because the L2 in question does not exemplify marked forms. If marked forms show up in the interlanguage, this would support the transfer view, because nothing in the L2 evidence could have motivated these forms, whereas the L1 does contain them.

(1987a:267)

Tarallo and Myhill (1983) studied the acquisition of relative clauses by adult native speakers of English learning different L2s. In a grammaticality judgement task, they found that their subjects accepted stranded prepositions in such target languages as German, Chinese, and Japanese, none of which allows stranding. Similarly, Liceras (1981, 1986) tested the potential transfer of PS by adult native speakers of English learning Spanish. She found that nearly fifty percent of her beginning level learners accepted stranding in a Spanish grammaticality judgement task and produced stranded prepositions when translating from English to Spanish. As subjects increased in proficiency level, however, there was no further acceptance of preposition stranding. That is, subjects, after the beginning stages of L2 proficiency, did not strand any longer. Of course, this may simply imply that learners had access to negative evidence in the course of their language learning experiences, but Liceras does not comment on this.

These studies show that transfer of a marked form may occur in an L2 learner's interlanguage or non-native grammar.⁷ Liceras' study

⁷Liceras argues that a distinction should be drawn between "a 'non-native grammar' which would reflect learners' competence, and an 'interlanguage' which would include in addition to the non-native grammar itself, production and comprehension mechanisms, social and pragmatic factors, etc." (1985:354). I shall not make such a distinction here, but

further suggests that while the marked parameter setting of a structure such as PS in a learner's L1 may also be assumed for the L2 as an initial hypothesis, such a marked value is reset as the learner moves closer to the target language. Both studies, thus, indicate support for a transfer hypothesis, at least in the early stages of L2 acquisition.

In a more recent study, however, White (1987a) obtained similar results for the dative alternation, but contrasting results for the potential transfer of PS. In a grammaticality judgment and correction task, White tested the acceptance of PiP versus PS. She also tested subjects' acceptance of the unmarked dative form NP PP, shown in (21), in contrast to the marked NP NP, shown in (22):

(21) I gave np[the books] pp[to the children]

(22) I gave np[the children] np[the books]

White's subjects included adults and children learning Quebec French as a second language. In this dialect, neither the marked (NP NP) form of the dative, nor the marked PS form are commonly acceptable,⁸ although the unmarked alternatives for both constructions are freely in evidence.

will use the term "interlanguage" (IL) to include all aspects of the continuum from L1 to L2.

⁸ In Québécois, there is a construction which is superficially similar to preposition stranding. It occurs in non-movement relative clause constructions and appears only with the prepositions *avec* or *pour*, as in the following example:

la fille que je suis sortie avec

These cases of "standing" have been studied by Vinet (1979), Zribi-Hertz (1984) and Bouchard (1981, 1984) and are discussed in chapter 4. To see whether learners were affected by this construction, White compared the results of preposition-stranded sentences using the two "intransitive" prepositions with those using other prepositions. There were no significant differences in the results, showing that subjects were not influenced by the particular dialect having a PS-like construction.

In the adult study, the subjects consisted of 27 adults at a "low-high intermediate" level of proficiency.⁹ One group of subjects consisted of native speakers of English, which contains both the unmarked and marked dative, as well as the unmarked PiP and the marked PS forms. The second group came from a variety of native languages, none of which had the marked form of either construction being examined.¹⁰ The French token sentences included ungrammatical cases of preposition stranding and the double object dative, as well as grammatical cases of pied-piping and the NP PP dative construction.

White's results showed that the English-speaking adult group did not readily transfer the marked PS form into French, accepting stranded prepositions only twelve percent of the time, while the group from non-stranding languages accepted PS almost forty percent of the time.¹¹ In the dative sentences, however, both groups responded at chance level and had difficulty recognizing the ungrammaticality of the marked construction.

It should be noted, related to our interests here, that White reports some intermediate level subjects' "correcting" ungrammatical PS sentences in French by dropping the stranded preposition. Unfortunately, White does

⁹In reporting the results, White does not separate these levels into smaller units since "there were no significant differences on the responses of the different levels when taken separately" (1987:268).

¹⁰It was later found that these subjects all had some knowledge of English, which could have affected their results.

¹¹In an attempt to measure any psycholinguistic factors involved in the results, White also had subjects indicate their degree of certainty concerning their responses. The group of subjects from non-PS languages indicated a significant degree of uncertainty in judging PS as correct, in contrast to PiP; no other group showed significant responses in this aspect of the test.

not tell us which subjects do this, nor what percentage of "corrections" of types of sentences exhibit this null-prep response.

In the child study, White similarly tested English-speaking subjects¹² on the grammaticality of the same constructions. The results showed that, like the English-speaking adults, the children (correctly) did not accept stranding in the L2, but (incorrectly) accepted the NP NP dative construction. White concludes that some marked constructions (the NP NP dative, here) may be transferred to the L2, while others (PS, in this case) may not be. She offers the suggestion that a psycholinguistic notion of markedness, such as that of Kellerman (1983), may be a stronger indicator of UG and transfer effects in the L2 than more formal notions of markedness. That is, native speakers of English may perceive PS, though not the NP NP dative, as a marked structure,¹³ and not readily transfer it into the L2.

White concludes that her results show that the developmental hypothesis is incorrect since neither the unmarked PiP nor especially the NP PP dative were definitively chosen as a second language learner's interlanguage construction. This result, White claims, goes against the developmental hypothesis because:

...in that view, L2 learners still have access to the unmarked case and revert to it. Therefore, they ought to reject the marked double object construction at a better than chance level; that is, they ought to treat it in the same way as the English L1 group treats stranding.

(1987:269)

¹² These subjects were all involved in French language immersion in school and had had French instruction for at least a year.

¹³ This would contrast, of course, with the suggestion above that PS is perceived by native speakers of English as the unmarked structure.

The implications for the transfer hypothesis, on the other hand, are less conclusive, since the results differed between the transference of the two marked forms under observation.

White's results appear to contradict the findings of Tarallo and Myhill and those of Liceras who found, in the case of PS, that the marked structure was initially transferred from the L1 into the L2. However, since White's subjects, both adults and children, were not beginning level students of French, this may simply confirm Liceras' results which showed that later stages of language learning reflect the correct rejection of inappropriate marked forms from the L1. Unfortunately it is not easy to compare the levels of proficiency of the subjects in these different studies.

White also suggests that English speakers "may have been bringing prescriptive judgments about English to bear on their knowledge of French" (1987:277), thereby rejecting PS in French not because it is a "marked" form, but because they have been taught that it is not as "grammatically correct" as PiP even in English. Liceras (1986) quotes one of her adult native English-speaking students, who had not accepted PS in the Spanish L2, as remarking that she had been taught that PS structures were not "proper English."

Similarly, in a pilot grammaticality judgment test of English PiP, PS, and null-prep sentences which were to be corrected if judged "bad", I found that four American college students overwhelmingly corrected null-prep sentences into the PiP alternative, stating when questioned afterwards that they had been taught that ending a sentence with a preposition ("dangling a preposition") was ungrammatical. This conclusion led one subject to

"correct" a PS sentence, (23a) below, into PiP, (23b), and to choose a PiP form in a sentence where PS seems much more appropriate, as in (24a and 24b):

(23) a. What country did your sisters and brothers grow up in?

"corrected" to:

b. In what country did your sisters and brother grow up?

(24) a. *The scene which the young art student painted a beautiful picture was in Maine.

"corrected" to:

b. The scene of which the young art student painted a beautiful picture was in Maine.

SLA studies of preposition stranding which exhibit contrasting results, then, may simply be showing prescriptivist biases among subjects against PS, resulting from teacher-training in the L1 or the L2; alternatively, they may show native speakers' perceptions of PS as the unmarked structure, as suggested earlier.

These complicating factors underline the need for researchers to test subjects in their native language first, to determine preferences that may confound test results in the L2. In addition, it may be important to provide both oral and written tests and compare results, since the frequency of PS in the oral input may also have an effect on the results. That is, since learners hear stranding in the spoken language with much greater frequency than they do pied-piping, which appears more often in the formal written language, learners may make very different judgements in the two modalities.

Adjemian and Liceras (1987) studied adults learning French, Spanish, or English as an L2 (see section 2.2.2 for other English L2 studies) and tested their acquisition of constraints on the COMP position in relative clauses. They tested forty university students in beginning language classes, using elicitation, translation, and grammaticality judgment tasks. Although the researchers tested varied COMP constructions, including NP in COMP and doubly-filled COMP, their tests involving PiP and PS in the three languages are what will concern us here. The three languages similarly permit PiP in COMP:

- (25) a. The man [to whom] you spoke
 b. L'homme [auquel] tu as parlé
 c. El hombre [a quien] tu has hablado

but differ in their acceptance of PS:

- (26) a. The man (who/that) you spoke to
 b.*L'homme que tu as parlé a
 c.*El hombre que has hablado con

It was therefore expected that there would be differential results of PiP vs. PS acceptability in the second language, depending on the interaction of the specific L1 and L2 with UG markedness factors. For example, it was predicted that a Spanish L1 speaker would easily accept, as well as transfer, PiP in the English L2, while an English L1 speaker would not transfer PS into the French L2 because of its marked character.

The experimental results in the written grammaticality judgments and translation task showed that, as in White's study, English L1 adults

did not transfer PS into the French or Spanish L2 and, contrary to Liceras (1986), this held even for beginning learners. Adjemian and Liceras suggest that these subjects recognize the "marked" quality of PS and therefore do not attempt to transfer it. It is also possible, as mentioned, that prescriptivist notions, rather than linguistic or psycholinguistic markedness factors, account for these results. In addition, as noted before, written tasks may favor PiP, as well as motivating more careful or "formal" performance in general.

Other results from Adjemian and Liceras showed that the French L1 adults, likewise, did not strand prepositions in the English L2, again suggesting a (developmental) markedness explanation.¹⁴ It is also possible, of course, that the subjects are simply using a transfer strategy from their L1. The distinction between markedness and transfer can not be sorted out, as noted by White earlier, when learners of a more restrictive language (e.g. French, where only the PiP option is possible) are learning a less restrictive one (e.g. English, where both PiP and PS are possible).

Adjemian and Liceras also speculate that processing strategies may result in differential acquisition among speakers with varied L1s learning an L2. French learners of Spanish, for example, are likely to be conscious that they are learning a language that is very similar to their L1 in basic structure, and assume that their parsing and processing mechanisms will be applied directly from one to the other. English learners of Spanish, by contrast, will probably be more reluctant to transfer forms

¹⁴ There were no statistics on the Spanish L1 adults in the PiP/PS grammaticality judgments and translation task in the English L2.

systematically from the L1 to the L2; since they perceive the two languages as dissimilar, they would not apply their English processing strategies to Spanish.

Since the Adjemian and Liceras study was a pilot, with a limited number of subjects and tokens tested, the results can only be viewed as preliminary. Questions and problems remain, however, regarding the issues which emerge when researchers attempt to accurately measure acquisition and/or transfer of PiP and PS. That is, there continue to be possible confounds involving a prescriptivist bias towards PiP, for classroom learners particularly. In addition, the relative frequency of PS in oral discourse vs. PiP in the formal, written mode may cause a particular L2 learner's target language exposure to affect test results. It is likely that variable results within and across studies may be related to these issues, interacting with psycholinguistic factors such as those we have noted. I will return to these methodological problems in the following section.

2.2.2 Experimental data on pied-piping and preposition stranding in second language acquisition: studies of English as L2

In order to examine the interaction between parametric variation in UG and transfer between the L1 and L2, Van Buren and Sharwood-Smith (VB&SS) (1985) conducted a pilot study of child and adult Dutch learners of English acquiring PiP and PS. Although both are stranding languages, Dutch differs from English in that the former restricts stranding to a group of "R"-pronouns. For example:

- (27) a. Met *wie* heb ik gesproken?
 With whom have I spoken
- b. **Wie* heb ik mee gesproken?
 Who have I with spoken?
- (28) a. Dit is de man met *wie* ik gesproken heb.
 This is the man with whom I spoken have
- b. Dit is de man *waarmee* ik gesproken heb
 This is the man 'wherewith' I spoken have
- (29) a. *Waar* heb je mee gesproken?
 Where/what have I with spoken?
- b. De man *daar* heb ik mee gesproken
 the man there have I with spoken

Thus, while *waar* and *daar* permit stranding, *wie* does not. On the other hand, Dutch allows "short" as well as "long" stranding. "Long" stranding, as in the above examples, involves movement of a [+wh] R-pronoun and is equivalent to English. "Short" standing, which is not permitted in English, involves movement of a [-wh] R-pronoun, as in:

- (30) a. Ik heb *er* gisteren over gesproken
 I have 'it' yesterday about spoken
 'I have spoken about it yesterday'

VB&SS investigated, (a) the extent to which Dutch subjects would accept stranding in English, (b) whether the differences between the two languages would affect the results, and (c) whether UG factors, which they would interpret as predicting a prevalence of PiP in their data, would be reflected. Subjects included Dutch university students in their second or third year of English study, and school children (no age given) with one

year of English as a foreign language. A series of written tasks tested their perception and production of the targeted items.¹⁵

Their results showed a general preference for PiP over PS. There was some degree of transfer of +R pronouns in PS cases. That is, subjects did not accept a large number of PS sentences in English, but acceptance was greater when stranding sentences were given with relative pronouns that were equivalent to R-pronouns in Dutch. This suggests, the researchers maintain, that even advanced L2 students had far from native-like competence in English even though Dutch learners have a high degree of informal exposure to English in their daily lives. The researchers conclude that "the overwhelming presence of stranding in the input is not reflected in either the school beginner or the advanced university subjects' behavior" (1985:35). It was also found that the further away the preposition was from the fronted WH, the less likely it was to be accepted in the grammaticality judgments; VB&SS suggest that this is due to processing difficulties which come about when there is a wide gap between the preposition and its object in COMP. Finally, as subjects developed in proficiency, there was a greater tendency to strand. Thus, the school children (beginners) accepted more PiP and rejected more PS than the university students.

Analyzing their results across individual subjects, the researchers found striking variation; some subjects consistently pied-piped, while others consistently stranded, and still others were inconsistent in their choices. Across individual test tokens, it was found that the Dutch learners

¹⁵ In the appendix to their text, Van Buren and Sharwood-Smith indicate that questions were used as target items; it is not clear whether they included relative clauses as well.

seemed to be treating *what* differently from *who*, suggesting a form of +/- R distinction in their interlanguage stemming from L1 transfer (see examples (28)-(30) above). That is, *what* (which is equivalent to an R-pronoun in Dutch) permitted stranding more than *who*. Van Buren and Sharwood-Smith conclude that their results may reflect a trend towards "cross linguistic influence" and processing influences, rather than strict UG markedness, but that further research is needed to sort out these issues.

It must also be suggested, again, that written tasks are biasing the results towards PiP and/or that prescriptivist/teacher-training influences may be reflected here. Another issue, however, becomes obvious.

The absence of native-speaker controls in this and in some of the preceding studies creates a problem for a responsible interpretation of the results. In fact, the researchers' use of *where* as a PiP or PS alternative would not be accepted by most native speakers:

*a. To where did you go?

?b. Where did you go to?

since *where* is more often used without any preposition:

c. Where did you go?

We do not know, also, whether native English speakers show a bias towards particular "R-pronouns" in PS vs. PiP constructions, nor whether written tasks would evoke one preferred form over the other, nor whether processing constraints affect long-distance stranding constructions among native speakers. In fact, we do not know whether there is a preference among

native speakers for one form over the other, either in general or particularly here, in these test sentences.

Nor do we know the degree to which native speakers conform to standard notions of grammaticality when judging these particular constructions. Rudin (1986) found that some American college students prefer either the PS form or, in formal style, a structure that has a "frozen" PiP, usually *in which*, with an additional preposition in stranded position:

- (31) a. The society in which she grew up in
b. The feeling for which he is left with

It should be noted that, in such constructions, the stranded preposition sometimes "repeats" the clause-initial one, as in (31a), but sometimes differs from it, as in (31b). It should also be clear that this construction is not considered grammatically well-formed in standard varieties of English. That is, English allows either fronting of the entire PP (=PiP) or extraction of the NP from the PP and movement into COMP (=PS); it does not permit both at the same time. Must it be assumed that the college students who exhibit the construction in (31) have different grammars than other native speakers? In fact it seems more likely that this construction constitutes a hypercorrection, that the students are "formalizing" the sentence by adding a PiP form, but without relinquishing the PS which is their natural, informal, preference. As noted earlier, prescriptivist factors, rather than intuitions or preference, may influence native speakers towards producing PiP. That is, they may have been taught that PS is ungrammatical, or not preferred, yet it is the form that they have acquired as children from frequent evidence in the input. They have also been taught, later on most

likely, that PiP is the preferred formal construction, and "added" it to their grammar without learning the required dependency relationship between the two forms (see Chapter 5 for discussion of this possibility).

In another L2 markedness study, Mazurkewich (1984, 1985) tested the acquisition of PiP and PS among high school and college learners of English as a second language. In contrast to the studies discussed above, Mazurkewich tested a strong (developmental) markedness claim in L2 acquisition. That is, she hypothesized that the unmarked/marked status of an opposition will be reflected in real acquisition time, predicting that PiP will be acquired by L2 learners earlier than PS, irrespective of the L1.

The subjects in Mazurkewich's study came from two distinct L1 backgrounds, Quebec French, a dialect with PiP and a few cases of PS-like structures, as noted in footnote 8 of this chapter, and Inuktitut, as Eskimo dialect with no prepositions. Learners from three proficiency levels were tested on thirty dative constructions. In a written elicitation task, they were asked to change a declarative statement into its interrogative (PiP or PS) form by creating a question from an underlined phrase:

Stimulus:	Cathy gave a book <u>to Kevin</u>
Expected response:	To whom did Cathy give a book?
	or
	Who/m did Cathy give a book to?

Mazurkewich examined the developmental progression of PiP and PS across proficiency levels and between her two L1 groups. Her results indicate the following order of acquisition for both groups:

no-prep < PiP < PS

Thus, she claims that the unmarked PiP form is acquired before the marked PS form, showing support for her hypothesis. The appearance of "no-prep", which precedes both other forms, is not considered in the interpretation of her results. In a section to follow, we will closely examine the data in this study which show the omission of the preposition, and suggest a tentative conclusion to be investigated further.

Kellerman (1985), in a strong criticism of Mazurkewich's study, suggests that test design, poor choice of subjects, and lack of clear statistical analysis all confound the results. In addition, Kellerman and White (1986) argue that the results simply reflect a transfer effect from the French L1, while the Inuktitut speakers' performance is influenced by the fact that they receive all their education in English and, thus, their developmental pattern (showing a high proportion of PS) and proficiency levels cannot be compared with those of the French speakers.

In addition to these issues and the particular problems commonly found in the PiP/PS studies we have explored (e.g. the possibility of prescriptivist biases, written tasks used exclusively), there are other flaws here as well:

1. The data were analyzed solely across groups of subjects and across PiP vs. PS sentences. It is essential, however, to analyze the data statistically with reference to specific lexical items, as in the Van Buren and Sharwood-Smith study. It seems likely that particular structures, or particular lexical VPs, WHs, or Ps will be produced more often with one form (PiP or PS) rather than the other, relating to frequency of use, style, or linguistic factors such as PP arguments contrasted with adjuncts.

2. Mazurkewich's presentation of the test sentences seems biased towards PiP. I note in her example sentence, repeated here,

Cathy gave the book to Kevin

that the whole PP is underlined and thus would suggest fronting of the whole PP, rather than the NP alone. Only by utilizing different tests can we be sure that particular tasks do not bias subjects towards one construction or the other.

Bardovi-Harlig (1987) also tested the acquisition of PiP and PS among L2 learners of English. However, she obtained contrasting results from those of Mazurkewich. Bardovi-Harlig's subjects were from varied L1s and were divided into eight proficiency levels of English; level one was the lowest level, level eight the highest. Bardovi-Harlig duplicated Mazurkewich's test and added a written sentence-combining task to test relative clause production:

stimulus:

The policeman _____ arrested him.
John reported the accident to the policeman.

expected response:

(a) The policeman to whom John reported the accident arrested him.

or

(b) The policeman who/m John reported the accident to arrested him.

Her prediction was that the salience, or frequency, of PS in the input would override markedness considerations, and acquisition order would proceed from PS to PiP, in contrast to Mazurkewich's findings.

Bardovi-Harlig's results support her hypothesis. She reports acquisition of the three constructions in this order:

no-prep < PS < PiP

and concludes that preposition stranding emerges before pied-piping. Her data tables, however, indicate that in questions (Mazurkewich's test), PiP begins to be more robust than PS at a very low proficiency level (Level 2.5). She attributes this result to a learner's employing "a more advanced rule (PiP) in simpler constructions (questions, rather than relative clauses), which seems quite plausible. It may also be the case that Mazurkewich's test more easily evokes a PiP form, as suggested earlier.

However, Bardovi-Harlig's sentence-combining task, creating relative clauses, would seem to bias subjects in the opposite direction. Such a task requires a subject to choose between: 1) relativizing the indirect object and leaving the preposition in place (PS, as in response (b) above); and 2) relativizing the indirect object and also fronting the preposition (PiP, as in response (a) above). Although linguistically a single process, the latter could be viewed as a two-step, and consequently more difficult, strategy¹⁶ among subjects who are inclined to treat the task as an exercise in problem solving rather than natural use of language. (It has been proposed that for adults, language acquisition is generally treated as problem-solving; for example, see Felix, 1985b, and Clahsen and Muysken, 1986 and 1989, as discussed in section 2.1.1.) Finally, both these question and relative clause

¹⁶ Sentence-combining is experienced by most L2 students as an extremely difficult task, perhaps because it tests knowledge of grammatical relations (Liceras, 1986:104), but perhaps because it is unnatural and imposes a heavy load on memory; one might find that it is more difficult for native speakers than other psycholinguistic tasks. One could claim that any strategy to simplify the task would probably be utilized by the test-taker. Also, I question whether such a difficult task can accurately evaluate beginning learners.

tasks suggest a type of mechanical activity that may not truly indicate the learners' competence regarding PiP vs. PS acquisition.

Bardovi-Harlig's results, then, would need to be validated across other tasks to eliminate these potential problems. Also, since she did not analyze her results according to her subjects' L1 backgrounds, or according to different lexical items, we cannot tell the extent to which transfer is operating nor whether particular pronouns, Ps, or NPs evoke particular forms, as discussed earlier. Nor did she norm her sentences by testing them on native speakers. And finally, the usual problems involved in testing the L2 acquisition of PiP and PS - problems that were mentioned earlier - exist for this study also.

It is concluded that there are a variety of issues surrounding the PiP and PS constructions that are likely to confound studies like that of Bardovi-Harlig, and the others we have examined, which seek to test markedness-based accounts of L2 acquisition. These could explain why the findings across studies are not consistent. But it must also be emphasized that even if the findings were consistent, the methodological problems would prevent us from drawing firm conclusions. Finally, the fact that the linguistic issues involving PiP and PS in English have still not been resolved is another source of uncertainty in the interpretation of the acquisition data.

One clear area of agreement between Mazurkewich and Bardovi-Harlig is that subjects begin the acquisition of PiP/PS by omitting the relevant preposition. It is this null-prep phenomenon that will now be addressed and examined throughout the remainder of this thesis.

2.3 The null-prep phenomenon

Null-prep among L2 learners was shown in earlier examples which are repeated here as (32):

- (32) Q: a. *Which house did she live last year?
 RC: b. *That's the house (that, which) she lived last year.

The null-prep constructions in (32) replace PiP or PS, as in (33) and (34) respectively:

- (33) Q: a. In which house did she live last year?
 RC: b. That's the house in which she lived last year.
- (34) Q: a. Which house did she live in last year?
 RC: b. That's the house (that, which) she lived in last year.

As has been reported, adults learning English as a second language seem to begin the acquisition of PiP/PS with the null-prep construction. There appears to be some evidence, also, that English-speaking children in the process of acquiring their native language may be exhibiting null-prep as well. In the following sections I will consider this first language acquisition data and then proceed to examine the null-prep constructions that have been noted in L2 studies. A rationale for further investigation of the phenomenon will be presented and an L2 pilot study described.

2.3.1 Experimental data on null-prep in first language acquisition studies

In the acquisition of preposition stranding, children learning English as their L1 appear to produce null-prep in WH questions well after

prepositions have been acquired and are used quite reliably in non-extraction contexts.

Hildebrand (1987) studied PS acquisition by 48 native English-speaking children of four age groups, 4, 6, 8, and 10 year olds. In an imitation task, the subjects were presented with four structurally different sentence types, including preposition-stranded questions. The four types are shown in Hildebrand's examples (p. 69):

Type (a) Movement of an NP dominated by VP:

What did John [vp read [np t]]

Type (b) Movement from a PP dominated by VP:

What did John [vp sing [pp about [np t]]]

Type (c) Movement from a PP dominated by NP:

What did John [vp read [np a [n' book [pp about [np t]]]]]

Type (d) Movement from a PP dominated by VP but separated from the verb by an NP sister:

What did John [vp cut [np the cake [pp with [np t]]]]]

In the first task, the children were required to repeat such questions verbatim. In the second task, subjects were presented with a picture of an object and required to change a stimulus statement about the picture into a cleft sentence, such as:

Stimulus: (picture of a crayon) "The boy at the table is drawing with a crayon."

Expected response: This is the crayon that the boy at the table is drawing with.

The results of both tests showed that children acquired Types (a) and (b) before Type (c), and that Type (d) was the last acquired. On Type (c), for example, none of the 4-8 year olds scored over 40% accuracy. On Type (d), even the 10 year olds scored lower than 60% accuracy, with the other age groups far lower.¹⁷

Hildebrand found that the predominant error (45% of their total errors) was omission of the stranded preposition. The total number of errors on the imitation task was 143; of that number, 60 were instances of null-prep such as:

(35) *What did the little boy read a story this morning?

Similarly, the total number of errors on the production task was 289; of these, 135 were instances of null-prep such as:

(36) *This is the crayon that the little boy at the table is drawing.

The following results (in raw numbers) show the omission of the preposition by age group on the two tasks:¹⁸

(37)	<u>age 4</u>	<u>6</u>	<u>8</u>	<u>10</u>	<u>total</u>
<u>Imitation task:</u>	44	10	5	1	60
<u>Production task:</u>	74	27	24	10	135

¹⁷ It may clearly be suggested that the tasks were too difficult, in particular the production task. The following percentages from each age group indicates accurate responses for the average of Types (c) and (d), for example:

	<u>age 4</u>	<u>6</u>	<u>8</u>	<u>10</u>
Imitation Task	29%	70%	75%	90%
Production Task	0%	15%	36%	62%

(These percentages are approximate as they were taken from a graph.)

¹⁸ Hildebrand does not provide us with the total number of items in her tests.

Hildebrand suggests that:

One might argue that young children generally pay less attention to morphemes (such as prepositions) with a less important grammatical role. The other error types, however, did not involve omitting the preposition...

(1987:77)

In addition, she notes that a pretest was administered prior to the imitation task to see whether children had a tendency to omit prepositions when they are not stranded. Hildebrand reports that in the pre-test, "only three prepositions were deleted out of 36 responses" (p. 77) suggesting that her subjects did not generally leave out prepositions.¹⁹ The following are examples from the pre-test:

- (38) He showed the boy to the girl.
- (39) The old man shot at the bear.
- (40) The little boy stayed for three days.

It is apparent from these examples (and, more readily, from the complete pre-test shown in the Appendix to her paper) that the verbs and prepositional complements in the pre-test differed from those in the experimental tasks, (and occurred in far less complex constructions). Therefore, it could not be argued that the pre-test provides an accurate indication of subjects' knowledge of prepositions. Since the pre-test does not demonstrate whether a subject knows the subcategorization features of the particular verb for which he or she is tested on the experimental tasks, the

¹⁹ It is not clear why there were only 36 responses if 48 children took the test. I can only assume that not all of the children took the pre-test, or that some children did not answer all the questions.

omission of the preposition on the latter tasks could simply be a reflection of lack of this knowledge. Until subcategorization knowledge is tested, these results cannot be taken as evidence of a null-prep construction in L1 acquisition.

In another study,²⁰ Erickson (1984) observed the development of WH movement in a 3 and 1/2 year-old child. Here it was found that, in spontaneous utterances as well as in an imitation task, the child produced sentences like:

(41) *What kind of cookie you're talking?

(42) *I was in the stuff what the dinosaurs were stuck.

Erickson notes that, at this stage of acquisition, the child does not seem to be able to use a preposition in the same clause as a WH-word. However, she notes that the child uses prepositions in many other structural contexts so the child "knows that prepositions have semantic content" (1987:8). For example:

(43) I was thinking about my dream.

(44) Can I sit on your lap?

Erickson suggests that the child may begin with the initial hypothesis that the elements within a PP cannot be extracted, as in languages like Spanish. She notes:

If Lara is assuming English is a language like Spanish, then she cannot leave a preposition dangling at the end of a sentence. But why doesn't she move the preposition along with the wh-word into the complementizer position like

²⁰ I thank Nina Hyams (personal communication) for bringing this to my attention.

Spanish speakers? It might be from lack of input data that would let her know she could move the preposition into comp along with the wh-word. This leaves her in a dilemma of not being 'allowed' to move wh-words away from prepositions, yet knowing that wh-words go into comp in order to make questions and relative clauses, but not knowing (from lack of exposure) that she could move the preposition into the complementizer also. Thus, with nowhere to put the preposition, it simply is dropped.

(1984:8)

Thus, Erickson treats null-prep as a strategy for coping, rather than a genuine linguistic hypothesis on the part of the child. In addition, like Hildebrand, Erickson did not test the child for subcategorization knowledge concerning the particular verbs for which prepositions were omitted. Such tests are crucial before findings of omitted prepositions can be interpreted. To further support Erickson's hypothesis, it would also be necessary to investigate children learning other native languages, especially those with only the PiP option, and determine whether they begin with null-prep. Such an investigation is beyond the scope of this study but will be essential in future research.

In a recent study of French speaking children in Ottawa, Labelle (1988) investigated the acquisition of relative clauses. She found that her subjects utilized a "resumptive-pro strategy" where the relativized pronoun remains overt, as shown in (45):

- (45) a. sur la balle qu'i(l) l'attrape
on the ball that he it-catches
- b. celle-là que le papa lui montre un dessin
that-one that the father to-her shows a drawing

This occurs in alternation with a "gap strategy" (=null-prep), as in (46):

Finally, in a study by French (1984), monolingual English and bilingual French/English children were shown to have acquired PS in English as well as PiP as early as 2;11 years old. French does not report any null-prep in her data, but of course this cannot be taken to assume that prepositions were never omitted. However, the study indicates that children appear to acquire the correct PiP and PS constructions quite rapidly, in marked contrast to many adults learning English as an L2 for whom this may not be the case.

In the final analysis, then, it is not clear whether L1 children are showing evidence of a null-prep hypothesis in different languages.

The relationship between input factors and null-prep in L1 and L2 acquisition has become an important question. It was argued above that null-prep exhibited by French children in Labelle's study may be a reflection of null-prep in their input. In the case of English, as well, Erickson suggests that input factors may be responsible for null-prep; that is, since children (almost) never hear PiP, which is assumed to be the unmarked parameter setting, they do not set their parameter(s) accurately, and simply drop the preposition to avoid the marked stranding construction. However, it is difficult to believe, in the case of adult L2 learners, that they have not encountered PiP in the input, especially in the academic speech and written language experienced by college ESL students.²¹ Yet it is this population who are the subjects of L2 acquisition studies which show null-prep.²²

²¹ A review of six beginning ESL textbooks shows a proliferation of PiP, as well as PS.

²² It will become apparent, later in this dissertation, that the input of English may indeed mislead L2, though not L1, learners in another way; that is, English has a construction which is superficially like null-prep. See extensive discussion in Chapter 4, section 4.3.)

Lack of piping input, then, may explain why an English-speaking child is not starting acquisition with the unmarked (PiP) parametric value,²³ but it fails to provide an explanation for null-prep in second language acquisition data.

2.3.2 Experimental data on null-prep in second language acquisition studies

Null-prep constructions are evident in the results of Tarallo and Myhill's (1983) study of English L1 speakers learning a variety of second languages. In a grammaticality judgement task, English speaking subjects learning German accepted null-prep 39% of the time in the L2. However, only 15% of learners of formal Portuguese, Persian, Japanese, and Chinese accepted null-prep in the L2, even though Chinese and Japanese exhibit correct instances of the form. Tarallo and Myhill suggest that learners of German leave out the preposition because German is the only language in the group where there is more than one feature that marks an indirect object relative: that is, the German relativizer is inflected, and there are also prepositions (which may appear as verbal prefixes) to casemark the relativized NP. Thus, Tarallo and Myhill conjecture that L2 learners provide "a clear example of the elimination of redundancy ... not brought about by a particular first language background"(p. 68) since English does not have null-prep.²⁴

²³ In the strongest form of the innateness hypothesis, however, it may be claimed that an unmarked parameter value does not need to be triggered by the input at all, or that a single utterance in the input would be necessary and sufficient to invoke a structure.

²⁴ English does have a construction which appears similar to null-prep (see discussion in Chapter 4, section 4.3).

In studies of English as L2, null-prep appears as well. The existence of null-prep is clearly recorded in Mazurkewich's (1984) second language acquisition study. The results showed that L2 learners readily produced questions such as (48) from stimulus sentences such as (49):

(48) David suggested the trip to Ruth.

(49) *Who did David suggest the trip?

Among Mazurkewich's French subjects learning English, null-prep was produced as much as 75.3% of the time among her beginners (compared to 19.1% PiP responses; 4.1% PS), 52.4% among intermediate-level subjects (19.0% PiP; 9.5%PS), and 40% among advanced-level subjects (40% PiP; 20%PS).²⁵

Among Mazurkewich's Inuktitut subjects, whom it will be remembered had received all their education in English, the corresponding null-prep results are predictably much lower (41.8%; 12.5%; 16.9%). As these subjects can not be characterized as typical adult L2 learners, I will not try to interpret their results here.

²⁵ These percentages varied, depending upon the type of stimulus sentence presented. That is, the statistics recorded here are based on stimulus sentences such as:

i. David suggested the trip to Ruth

where the NP NP dative is not possible,

*ii. David suggested Ruth the trip.

In contrast, for a stimulus sentence of:

iii. Peter gave the book to Mary.

the dative alternative NP NP is permitted:

iv. Peter gave Mary the book.

Here, subjects produced slightly higher null-prep results (66.2%; 48.5%; 40%). This was, presumably, because the construction has an alternative (iv.) which does not require a preposition.

On the other hand, when the dative NP NP itself (iv.) was provided as a stimulus sentence, understandably this produced the highest null-prep results (80%; 80%; 65.3%) since learners were simply mimicking the no-preposition structure. For obvious reasons, these will not be considered valid null-prep data.; nor should questions resulting from iii. since iv. freely alternates with iii.

Mazurkewich suggests that the absence of the preposition in her data may be a result of model test sentences where only declaratives with direct objects were presented to subjects to manipulate for practice. She notes that "it is entirely possible that some subjects were influenced in performing this task by the example they were offered" (1984:125), but suggests that this would only be the case among the beginning learners. Such an explanation may not adequately account for the relatively high percentage of null-prep responses among the intermediate and advanced French learners of English.

It could be suggested that the beginners and, perhaps, the intermediate subjects, do not have accurate subcategorization features for the verbs in question. That is, even though there may be a V + PP in a stimulus sentence, the learners do not know that a particular verb requires a PP argument and so they do not produce the preposition in the more complex question form.

This subcategorization explanation, however, does not convincingly explain the absence of prepositions among the advanced learners, especially when the French speakers have a form (PiP) in their L1 that directly translates a legitimate English form. We must assume that, at this level of proficiency, these learners are using prepositions fairly consistently. Based on my own experience of hundreds of L2 English learners over twenty years, I would claim that typically, just a few particular lexical forms may still be incorrect (e.g. they may use *I live at Canada*, instead of *I live in Canada*, but they do not say or write *I live Canada*).

Bardovi-Harlig (1987) notes that the subjects in her study of PS and PiP in English begin with a "no-prep rule", which she alternatively calls a "strategy". She states:

Before learners employ either rule [PS or PiP], they employ the strategy of using no preposition at all (No-Prep) in both questions and relative clauses. This first strategy, No-Prep, occurs regardless of the stimulus given. Subjects employ this strategy when the sentence occurs with a preposition and when it occurs without one.

(1987:13)

To explain No-Prep, Bardovi-Harlig notes that the strategy "drops off as the students begin to acquire rules with prepositions" (1987:15), suggesting subcategorization errors as the cause for this phenomenon.

It must be noted, however, that Bardovi-Harlig tested ninety-five subjects across eight proficiency levels. The highest levels, 7 and 8, were comprised of students already matriculating in university courses, ten of whom no longer required any English language training, having attained almost native-like proficiency. Thus in this context, subjects in levels 5 and 6 must be considered at a very high intermediate level. This is worth noting when we examine the test results which reflect (approximate)²⁶ percentage of responses.

Taking both tests together, subjects gave null-prep responses 85% of the time (15% PS; 0%PiP) at level 1. At level 3, the null-prep responses were 78% (22%PS; 0%PiP). At level 6, which showed virtually the same percentages as level 5, the null-prep responses were 39% (42%PS; 19%PiP). Null-prep at level 7 drops dramatically to 19% (39%PS; 42%PiP).

If Bardovi-Harlig is correct in attributing null-prep responses to subcategorization errors, she must claim that at high-intermediate levels (5 and 6), and less so at a very advanced level, learners still do not associate certain verbs with prepositional arguments. Unfortunately, this remains

²⁶ Bardovi-Harlig presents her results in the form of graphs which do not indicate exact percentages.

an open question since she did not test for this; that is, her test sentences did not include declaratives where the V + PP would not interact with WH-movement strategies. Furthermore, it would be important to choose verbs which do not exhibit the dative alternation, an element of both Mazurkewich's and Bardovi-Harlig's studies which may have confounded the results by suggesting an NP NP structure where one is not permissible. Finally, since Bardovi-Harlig did not analyze her results across L1 groups, we cannot know whether null-prep is more prevalent among language learners whose native language has no prepositions, which would suggest a transfer-like strategy.

To examine this phenomenon in a systematic way, it will be necessary to differentiate at least three factors:

1. We must determine whether learners are merely making guesses or inconsistent performance mistakes when they choose a null-prep response, or whether they are consistently hypothesizing a null-prep construction which would indicate their current stage of interlanguage competence.
2. We must determine whether a learner has or does not have the correct subcategorization frame for a particular (non-dative) verb. Only when instances of null-prep are not attributed to incorrect subcategorization can we associate it with WH-movement and the acquisition of PiP and PS.
3. We must examine the results among several L1 groups to see whether, for the clear cases of null-prep that remain, there are any differences related to the native language.

To investigate whether the null-prep phenomenon could be solely attributed to inconsistent performance mistakes, subcategorization errors, or LI transfer strategies, I pilot-tested fifty-three adult L2 learners of

English from a variety of L1 backgrounds and proficiency levels.²⁷ In two untimed grammaticality judgment tasks, with each sentence presented in written form and orally, subjects were asked to judge sentences with PiP, PS, or null-prep in interrogatives and relative clauses. Six verbs requiring a PP argument were tested, and a declarative sentence was included for each verb with (incorrect) omission of the required preposition. If a subject judged such a sentence as correct, it would be clear that a subcategorization explanation would account for any subsequent null-prep choices made by that subject for that particular verb.²⁸

My first task required that subjects correct any sentence that they judged bad, so that I could tell whether they were focussing on the targeted (omitted) preposition. I also maintained identical lexical items across the structures tested, in order to eliminate responses based on semantic differences. Each subject saw six verbs in a null-prep construction (the declarative and a Question (Q) or a Relative Clause (RC)), as well as some examples of PiP and PS. One example of a full set of sentences (total=6 sets) is shown in (50):

²⁷ Because my pilot project is replicated in a much more extensive study described in Chapter 3, I have not here included many of the details (e.g. controls, procedures) of the pilot.

²⁸ In the first task, subjects judged a sentence *good* or *bad*; if they indicated *bad*, they had to correct it appropriately. Subjects were encouraged to take as much time as they needed and to go over their answers before handing them in. They were also asked to indicate their degree of certainty regarding their responses and were discouraged from guessing. They indicated: __don't know, __ not sure, __ sure, or __ very sure for each response. They also indicated __cc (can't correct) if they knew a sentence was *bad*, but didn't know how to correct it.

(50)

CORRECT SENTENCES

Declarative: The Chinese woman lived in that house last year.

PIP Q: In which house did the Chinese woman live last year.

RC: That's the house in which the Chinese woman lived last year.

PS Q: Which house did the Chinese woman live in last year?

RC +COMP²⁹: That's the house that the Chinese woman lived in last year.

RC -COMP: That's the house the Chinese woman lived in last year.

NULL-PREP SENTENCES

Declarative: *The Chinese woman lived that house last year.

Q: *Which house did the Chinese woman live last year?

RC +COMP: *That's the house that the Chinese woman lived last year.

RC -COMP: *That's the house the Chinese woman lived last year.

Each subject judged 18 null-prep sentences interspersed with 30 filler sentences ³⁰ and randomized. Six native speakers served as controls.

The results showed the null-prep phenomenon to be robust. At the beginning level, subjects who showed correct subcategorization in a particular declarative, accepted null-prep at a rate of 69% in the questions and 76% in the relative clauses matched for that declarative. The intermediate-advanced level subjects accepted null-prep 36% of the time in questions and 57.5% in relative clauses. ³¹ Interestingly, subjects found the

²⁹In relative clauses +COMP, the COMP position is lexically filled with a relative marker, either *which* or *that*. In RC -COMP, there is no overt relative marker in COMP position.

³⁰ Filler sentences included correct instances of piping and stranding, as well as correct and incorrect instances of other constructions.

³¹These percentages are of those responses, only, in which subjects indicated that they were *sure* or *very sure* of their answers. If *not sure* responses were included, the percentages of null-prep acceptance would be even higher.

null-prep sentences with -COMP the most difficult to judge and correct, as in :

(51) *That's the house the Chinese woman lived last year

Across proficiency levels, subjects tended to indicate these sentences as *bad* and then proceed to correct them by inserting *that* in COMP but continued to omit the preposition:

(52) *That's the house that the Chinese woman lived last year.

This occurred even though subjects had been instructed that some sentences could have more than one mistake.

When I interviewed several subjects afterwards to be sure they didn't want to change this particular response, I repeated their "corrected" sentence aloud, as well as had them read it; in all cases they maintained their conviction that it was now a *good* sentence, which indicated that they were not simply distracted by their insertion of *that*.

Some subjects (correctly) responded confidently that a null-prep sentence was *bad* , but that they could not correct it. This strategy (of accurate judgement, but non-correction) was stronger at the lowest levels and suggests that some learners are guided by the way a structure intuitively sounds to them, as native speakers are, rather than relying on conscious analysis. ³²

Finally, there were no apparent differences among various L1 backgrounds. These included Spanish (only PiP), Norwegian (PiP and PS),

³² Such a strategy may be more prevalent for learners with a high degree of exposure to the oral language.

and Japanese (no PiP or PS). This suggests that transfer is not an important factor in the results.

To confirm these results and to see how strongly subjects maintained null-prep, I also pilot-tested a small number (8) of subjects with a ranking task. The subjects spoke six different L1s, including Norwegian which allows both PiP and PS, and Japanese which has postpositions and no PiP or PS, as indicated above.

In this task, subjects were asked to rank sentences, using five choices:

? = I don't know X= ungrammatical 1= good 2=better 3=best

Three sentences in a grouping appeared as follows, with the ordering of presentation randomized:

- a. () The house in which she lived was very comfortable.
- b. () The house which she lived was very comfortable.
- c. () The house which she lived in was very comfortable.

and subjects had to rank each sentence against the other two.

It was expected that subjects would not as readily accept null-prep constructions when they were presented in direct contrast with the correct forms. However, if null-prep was a genuine linguistic hypothesis, rather than just a performance strategy, it would be expected that some subjects would give it at least a "1" even in this comparative context. Such a finding would be very strong confirmation of a null-prep hypothesis.

This turned out to be the case. Although, null-prep was never scored better than PiP or PS, acceptance of the form as an option was evident. Although the number of subjects and items here were very small and the results, therefore, tentative, there was a fairly high acceptance of null-prep: 22% in questions and 48% in relative clauses. In addition, there seemed to

be no significant difference in the acceptance of null-prep in arguments (30%) vs. adjuncts (36%). The acceptance of null-prep differed markedly among varied lexical verb/preposition combinations (e.g. lived in=50%; listened to=33%; agreed with=17%), and subjects did not reject PiP or PS when accepting null-prep showing that they viewed it as an optional, rather than an obligatory, construction. Again, acceptance of null-prep was not associated with any particular L1 group; the Norwegian subject, interestingly, accepted null-prep 36% of the time, the same percentage as one of the three Japanese subjects who was at the same level of proficiency in English (high-intermediate).

The results of these pilot studies encourage the view that L2 learners are exhibiting null-prep in the early, and sometimes later, stages of their interlanguage. Stimuli presented orally and visually evoke this response, and subjects indicate confidence in their acceptance of null-prep in questions and relative clauses, though they do not accept it in declaratives. They accept null-prep even when presented in comparison with the correct (PiP and PS) forms.

There is preliminary evidence, therefore, that the null-prep phenomenon cannot be attributed to performance mistakes, subcategorization errors, or L1 transfer. Support has been gained for the claim that it is a genuine linguistic stage of L2 learners in the acquisition of PiP and PS.

In the following chapter, I report a replication of these initial findings in a more formal and extensive study.

Chapter 3: The Experiment

3.0 Introduction

Chapter 2 presented a review of second language studies of pied-piping and preposition stranding in English. In some of these studies, it was shown that null-prep appears as an early stage in the acquisition process, yet null-prep data are usually dismissed by researchers. The existence of the phenomenon was explained by Mazurkewich, for example, to be the result of the practice test sentences that she had presented to her subjects. Bardovi-Harlig suggested that null-prep reflected a lack of subcategorization knowledge on the part of her subjects.

In my pilot studies described in Chapter 2, section 2.3.2, the explanations offered by Mazurkewich and Bardovi-Harlig were not supported. Practice test sentences, both with prepositions as well as without, were presented to subjects and null-prep still appeared in the results. Similarly, null-prep acceptance in questions and relative clauses was only considered when subjects showed accurate subcategorization of the very same verbs with respect to the same prepositions in corresponding declaratives. The phenomenon remained robust.

Some of the prior PiP/PS studies were criticized for:

1. having no native speaker controls
 2. using the dative construction
 3. not presenting tasks in oral as well as written mode
 4. not analyzing data across L1 groups
 5. not analyzing data across lexical items
-

In the experimental study to be reported here, the findings confirm my pilot research. This study was done under more rigidly defined conditions than those of the pilot tests, controlling for each of the points mentioned above.

The purpose of this study is to test the hypothesis that adult L2 learners of English exhibit null-prep as an early interlanguage stage in the process of acquiring pied-piping and/or preposition stranding. The experimental test, a grammaticality judgement and correction task, clearly demonstrates the existence of null-prep in the L2 learner's language development. In the task, subjects who showed accurate knowledge of subcategorization for verbs requiring a preposition, often omitted that same preposition in the corresponding question and/or relative clause.

In this chapter, I will describe the methods and results of the experimental study. In the following chapter, I will present a syntactic analysis of questions and relative clauses containing prepositions, which will be necessary to help interpret the null-prep L2 acquisition results reported here.

3.1 Research Questions

The experimental task was developed to investigate the following research questions:

1. Does the evidence indicate that null-prep is:
 - a. a subcategorization error?
 - b. a performance error?
 - c. a true linguistic hypothesis?

2. At what stage of proficiency does null-prep initially occur and to what extent is it maintained at other stages?
3. To what extent is null-prep influenced by syntactic or lexico-semantic factors? That is, will there be differential acquisition of the correct behavior of prepositions for:
 - a. Questions vs. relative clauses?
 - b. Empty comps vs. lexically-filled comps in relatives?
 - c. Which vs. That relatives?
 - d. Particular verbs + prepositions?
 - e. Particular prepositions?
4. Can occurrence of null-prep be attributed to L1 transfer strategies?
5. If not, how can null-prep in L2 acquisition be explained?
 - a. Can a UG explanation account for the occurrence of null-prep?
 - b. If not, can general problem-solving and processing mechanisms account for it?

The study described in this chapter attempts to provide answers to the first four questions above. The question of explanation is left for Chapter 5, following the linguistic analysis of null-prep in human languages.

3.2 Methods

3.2.1 Subjects

THE EXPERIMENTAL GROUP:

The subjects consisted of 196 non-native speakers (NNS) of English. They were all college students learning English as a Second Language at the American Language Institute (ALI) of New York University. The

following information is derived from subjects' responses to a questionnaire preceding the experiment:

The group ranged in age from 17 to 49, with 25.2 as the median age and 95.1% of the subjects under the age of 35. They consisted of high school (and some college) graduates from more than 27 different countries. 15.8% of the subjects had studied a third language and 2.6% had studied a fourth. For the remainder of the group, English was the only other language they had studied, and this had begun post-puberty. The group was almost evenly divided between male and female¹ and all were right-handed. While some subjects had begun learning English in their native countries, others had started learning the language when they arrived here. 18.6% of the subjects had learned English mostly by listening and speaking², 53.2% by reading and writing, and 28.2% by a combination of both modes. Because of this diversity, the task was presented both orally and visually.

Subjects spoke eighteen different languages as shown in Table 3.1. Native language was coded as a dependent variable for the purpose of determining the influence of L1 on the results. This is reported and discussed in section 3.3.

¹ Eighteen subjects did not respond to this question, but the rest were evenly divided.

² I would assume that a proportion of these subjects are "untutored" learners, having learned most of their English outside the classroom. Such learners may be prone to more syntactic errors, since they do not receive the direct negative evidence (i.e. corrections) provided in a class setting. For this reason, "mode of acquisition" was analyzed as a variable in my results, to see whether an oral vs. visual mode had an effect on the presence of a null-prep response.

TABLE 3.1. Native language backgrounds of subjects

<u>Native language</u>	<u>Number of subjects</u>	<u>% of subjects</u>
Japanese	91	46.4
Korean	23	11.7
Spanish	22	11.2
Chinese	18	9.2
French	9	4.6
Thai	7	3.6
Italian	4	2.0
Brazilian Portuguese	4	2.0
German	4	2.0
Indonesian	2	1.0
Hebrew	2	1.0
Arabic	2	1.0
Turkish	2	1.0
Polish	2	1.0
European Portuguese	1	.5
Greek	1	.5
Persian	1	.5
Maltese	1	.5

Subjects exhibited varied proficiency levels in English, as established by criteria within the American Language Institute based on written grammar and composition tests, as well as tests of listening comprehension. Although these tests have been standardized within the program, it should be noted that the resulting levels may not correlate with levels at another institution. However, they provide the notion of a continuum of proficiency which, though not absolute, suggests stages of language acquisition within a given English language program.³

³ For the purpose of determining a) whether null-prep exists among L2 learners: and b) whether it gradually decreases as general language proficiency increases, it was felt that the leveling procedures exercised within an individual institution were sufficient for this study. It would be predicted, pending a replication of the experiment at other institutions, that the test would produce similar results under other student evaluation measures.

There are eight proficiency levels at the ALI. Levels 1-6 consist of students undertaking intensive English (20 hours per week) before they may matriculate at NYU or another college. Levels 7 and 8 consist of students taking part-time English (6 hours per week) who may be matriculating at NYU or another college. It would take about 2 - 2 1/2 years for a typical student to progress from level 1 to level 8.

Students from levels 3 - 8 were tested. In the results I have grouped them as follows:

ALI levels 3/4 = Low test group 'Level 1'
 ALI levels 5/6 = Mid test group 'Level 2'
 ALI levels 7/8 = High test group 'Level 3'

The numbers and percentages of subjects by proficiency levels is shown in Table 3.2. Proficiency level is predicted to be a significant dependent variable in the study.

TABLE 3.2. Proficiency levels of subjects

<u>Proficiency level</u>	<u>Number of subjects</u>	<u>% of subjects</u>
Level 1	55	28.1
Level 2	66	33.7
Level 3	75	38.3
Total:	196	

On the basis of my pilot study, I determined that subjects in the early stages of L2 learning do not have sufficiently accurate subcategorization of verbs for prepositions in declarative sentences to test for null-prep in questions

and relative clauses. I therefore eliminated ALI levels 1 and 2 from the test. Even within the low test group ('Level 1'), subjects have subcategorization difficulties to such an extent that the null-prep data are sparse. This stage is therefore the earliest at which null-prep can be reliably demonstrated. Learners may, of course, have null-prep grammars prior to this, but it would not be reliably detectable in their output or judgements, especially in relative clauses.⁴ By examining increasingly higher proficiency levels, it will be possible to show if and how long null-prep is maintained beyond this earliest manifestation.

THE CONTROL GROUP:

The control subjects consisted of 20 college students who are native speakers (NS) of English and who at the time were enrolled full-time in undergraduate classes. In addition, 20 ESL teachers at the American Language Institute of NYU were tested, all of whom were native English speakers; included in this group were all the teachers of the non-native speaker subjects I had tested, and some that they had studied with in prior semesters. I thought this would help eliminate any suggestions that the results reflect teacher influences or biases. In total, then, there were 40 native speakers tested, all of whom were educated speakers of standard American English.

⁴ Teachers at the ALI currently teaching students who are at very low L2 proficiency levels (i.e. ALI levels 1 and 2) indicated that these students do not, as yet, understand or produce relative clauses in any systematic way. This would have confounded any null-prep test results for these constructions.

3.2.2 Materials

Subjects were given a grammaticality judgement (GJ) test consisting of 70 sentences. Among the test sentences were related declaratives, questions, and relative clauses with nine targeted verbs. Of these verbs, each required one of three prepositions. The verb + preposition pairs tested were:

wait for	dance with	talk about
apply for	play with	complain about
pay for	live with	worry about

The verb + preposition combination was dependent upon the particular context in which it appeared. Thus, for example, *talk about* was required rather than *talk to/with* since the object of the preposition was inanimate:

The girls talked (about) *the interesting movie* yesterday.

(See Appendix A for the target sentences in which the verbs + prepositions appeared.)

TARGET SENTENCES:

There were 27 ungrammatical target sentences which contained the nine targeted verbs with the required preposition omitted. These verbs appeared in three conditions:

- (D) Declarative
- (Q) Question
- (RC) Relative Clause

The same lexical items were maintained across conditions, as in:

- (1) a. The old man worried his medical insurance last weekend.
 b. Which insurance did the old man worry last weekend?
 c. This is the insurance that the old man worried last weekend.

Since it was important to test whether there is differential acquisition of relative clauses with a varying COMP:

which vs. *that* vs. $\emptyset$

three forms of the test (A, B, or C) were given, so that the COMP sub-conditions could be tested. A group taking test A, for example, judged three verbs with *which* in COMP. A second group (taking test B) judged the same three verbs with *that* in COMP; the third group (taking test C), judged the same three verbs with $\emptyset$ in COMP, etc.

Subjects taking any test (A, B, or C) were presented with the same declarative and question forms, for example:

- (2) a. (D) The two friends talked the interesting movie last night.
b. (Q) Which movie did the two friends talk last night?
- (3) a. (D) The old man worried his medical insurance last weekend.
b. (Q) Which insurance did the old man worry last weekend?
- (4) a. (D) The little boy played the teddy bear this morning.
b. (Q) Which teddy bear did the little boy play this morning?

However, subjects taking Test A judged the following sentences in the corresponding relative clauses:

- (2) c. (RC) Here's the movie which the two friends talked last night.
- (3) c. (RC) This is the insurance that the old man worried last night.
- (4) c. (RC) Here's the teddy bear the little boy played this morning.

Subjects taking Test B judged:

- (2) c. (RC) Here's the movie that the two friends talked last night.
- (3) c. (RC) This is the insurance the old man worried last night.
- (4) c. (RC) Here's the teddy bear which the little boy played this morning.

Subjects taking Test C. judged:

- (2) c. (RC) Here's the movie the two friends talked last night.
- (3) c. (RC) This is the insurance which the old man worried last night.

- (4) c. (RC) Here's the teddy bear that the little boy played this morning.

Every subject, therefore, saw and heard three versions of the same sentence interspersed throughout the test. The related sentences were always spaced such that one appeared at the beginning of the test, one in the middle, and one at the end. In all, a subject judged 27 sentences with missing prepositions.

THE FILLER SENTENCES:

1. There were 18 filler sentences with correct instances of 6 verbs + prepositions across the same three conditions. These filler sentences were intended to ensure that subjects would not be biased by the prepositionless target sentences towards omitting prepositions in such constructions, and would even correct models to emulate. In the question and relative clause constructions, three verbs + prepositions were presented in the preposition stranding form, while the other three were shown in the pied-piping form, as in:

- (5) a. The tourists are looking at the tall buildings right now.
 b. Which buildings are the tourists looking at right now?
 c. Those are the buildings (which, that, Ø) the tourists are looking at right now.
- (6) a. The girls sat on the park bench yesterday afternoon.
 b. On which bench did the girls sit yesterday afternoon?
 c. This is the bench on which the girls sat yesterday afternoon.

2. In addition to 7 "introductory sentences",⁵ there were 18 incorrect filler sentences using various other structures.⁶ These sentences each

⁵ Subjects practiced before the test with model sentences. Then, although the subjects were not aware of this, the first seven sentences which appeared after the test "began" were all non-target sentences. This was an added measure to ensure that subjects were comfortable

contained verbs which did not require prepositions, making them distinct from the targeted items. Each of these sentences, however, also occurred with consistent lexical items across three different constructions⁷ and was grammatically incorrect with respect to some factors such as subject-verb agreement, auxiliaries, or verb tenses. For example:

- (7) a. The nurse are eating a sandwich in the cafeteria.
 b. What the nurse eat in the cafeteria last night?
 c. Did the nurse ate a sandwich in the cafeteria last night?

Summarizing, the test consisted of 70 sentences, where all but the introductory sentences were pseudorandomly interspersed:

- 7 "introductory" sentences, 5-correct, 2-incorrect.
- 27 (incorrect) target sentences, with the preposition omitted.
- 18 (correct) filler sentences, with a verb + preposition.
- 18 (incorrect) filler sentences, with various other structures.

The number of sentences within each group was determined by the experimental design which was limited to a test of 70 sentences maximum.⁸ With 27 target sentences to test, it was not possible to provide an equal number (27) of correct (PiP/PS) sentences as fillers. That would have left only 16 remaining sentences of *other* constructions which it was

with the task and responding appropriately by the time they encountered the target and filler sentences constituting the real experimental materials.

⁶ These sentences gave subjects a chance to correct errors that did not involve prepositions. This was so that subjects would not become too aware of the purpose of the experiment, or biased in their error-correction strategies.

⁷ This was done so that every sentence in the test, both target and filler, occurred in three forms to help insure that subjects did not become aware of the purpose of the test. Like the target sentences and *correct* fillers, the three related forms of each of these sentences were evenly spaced throughout the test.

⁸ My pilot tests indicated that the average subject was able to comfortably judge a maximum of 70 sentences within one hour. A longer test would have been too exhausting for subjects to manage.

felt was insufficient to adequately camouflage correct and incorrect piping/stranding sentences. Thus, it was decided to balance correct and incorrect fillers of 18 each, in the hope that this would encourage subjects to maintain a neutral status for the remaining target sentences and judge them without bias. It cannot be definitively excluded that subjects were matching the frequency of their *good/bad* responses for null-prep sentences they were unsure of, to the frequency for other items in the test. But note that this would give positive encouragement to accept null-prep only to subjects who were already accepting it more than 50% of the time.

See Appendix A for a complete inventory of the target and filler sentences.

CONTROLS:

The verbs, prepositions, and target sentences in the experimental task were controlled for the following factors:

1. The verbs + prepositions used were all of relatively high frequency in native English and commonly used in L2 classrooms. They were chosen after examining 3 beginner ESL textbooks and 30 spontaneous compositions of ESL students who had been studying English for less than one year. In addition, 61 subjects⁹ were given a subcategorization pre-test of declarative sentences only, using verb/preposition combinations from the beginner texts and spontaneous compositions described. The nine verb/prepositions chosen for the final test were those that subjects were able to correct with the highest degree of accuracy of all those presented on the subcategorization pre-test.

⁹ These subjects were all at the beginning or low-intermediate levels of English proficiency, but were not the same subjects used in the main experiment.

2. Targeted verbs were all presented in the past tense to avoid issues of subject-verb agreement. The inverted auxiliary verb in questions was always *did*. These simplifications were intended to minimize distraction from the actual error in the sentence - that is, the absence of a preposition.
3. The monosyllabic prepositions (*for*, *with*) were both consonant-initial (CVC) to address the potential explanation that prepositions are dropped because they are not heard. That is, it might be argued that a monosyllabic vowel-initial preposition (e.g. *at*, *on*) will not be salient because it is composed of an unstressed vowel which may not be heard, plus a final consonant which non-native speakers often do not pay attention to. In a CVC preposition, however, it is more likely that the initial consonant will be heard and give salience to the whole syllable. Similarly, a bisyllabic preposition (*about*) was used because of this salience factor.
4. Dative verbs were not used since they can appear alternatively in the NP-to-NP or the NP NP (no preposition) constructions:

I gave the book to him.
I gave him the book.

This is not a case of what we have been calling the null-prep phenomenon, although L2 learners might be confused by such examples. Since L2 learners may not know which English verbs permit the NP NP construction (see discussion of Mazurkewich, 1984 above), all verbs with dative meanings were avoided.

5. The subject of the main clause or the relative clause was always an NP rather than a pronoun, for the sake of consistency. Thus, the following sentences represented by (8a), (9a), and (10a) were used, not sentences like the b forms:

- (8) a. [The young girl] waited the school bus yesterday morning.
b. [She]
- (9) a. Which bus did [the young girl] wait yesterday morning?
b. [she]
- (10) a. This is the bus that [the young girl] waited yesterday morning.
b. [she]

6. When the COMP was filled by a wh-form, rather than *that* or $\emptyset$, it was always presented as *which*, as in:

This is the bus which the young girl waited yesterday morning.

Therefore, the relative clause head was always required to be non-animate. This was to avoid problems which a *who/whom* choice might have created. The fronted phrase in the question form was a full NP (e. g. *which bus* rather than *which*), as illustrated in (9a).

7. Lexical items were kept constant across corresponding declaratives, questions, and relative clauses to avoid varying results from lexical factors.

8. An adverbial time expression appeared at the end of all targeted sentences. This was so that a subject inserting a preposition would not have to struggle with the (potentially uncomfortable) option of leaving it dangling in sentence final position. This adverbial expression never began with a preposition (e.g. *last evening* was used rather than *in the evening*) to avoid a sequence of prepositions in PS sentences.

9. Target sentences contained no prepositional phrases other than the one being tested.

10. The distance between the "filler" and the "gap" was the same (i.e. the same number of words) across all the target sentences. In all cases there was a 4-word intervening string in relative clauses (after the *that* or *which* if any, and before the gap), and a 5-word intervening string in questions

(after the fronted NP and before the gap). The two-word differential in the intervening string in relative clauses and in questions is due to the presence of an auxiliary in the latter constructions. This was not predicted to be a significant factor in the results.

11. Before a sentence was presented on the test with a missing preposition, subjects were asked to judge a similar (correct) sentence where the preposition was included. For example, each null-prep declarative was preceded by at least one case of a declarative with its required preposition. For example, the declarative test sentence (TS8) preceded test sentence (TS10):

(TS8) The children were laughing at the funny pictures this morning.

(TS10) The two friends talked the interesting movie last night.

Null-prep questions and relative clauses likewise followed at least one correct instance each of a related construction in its correct form. For example, the correct question (TS11) preceded question (TS13) in which the preposition was omitted:

(TS11) Which buildings are the tourists looking at right now?

(TS13) Which bus did the young girl wait this morning?

Similarly, in relative clause constructions, the correct sentence, as in (TS14), preceded the incorrect test sentence (TS16):

(TS14) Here is the library which the boys were reading in this week.

(TS16) This is the doll which the silly clown danced last night.

This was to avoid biasing subjects towards the null-prep form, and to give them as much linguistic assistance as possible.

3.2.3 Procedures

The task consisted of a grammaticality judgement and correction test, with a confidence rating scale.

While the use of grammaticality judgement tests is now relatively common in SLA studies, the addition of the correction task, which is less common, ensures focus on the grammatical item being tested (in this case, prepositions). The addition of a confidence rating scale, on the other hand, is rare in such studies (but see Bialystock and Frolich, 1978). Schwartz, Sparkman, and Deese (1970) found that when native-speakers were forced to choose between "yes" or "no" on a grammaticality judgement task, the results provided little insight into the question under investigation (the degree to which speed of information intake will affect the completeness of sentence processing). However, when they added a 7-point scale for subjects to indicate the degree of confidence in their judgements, Schwartz et al. were able to achieve an index of comprehensibility which provided a basis for interpreting their results. "An all-or-none judgment forces the use of the scale extremes...Whatever potential information is lost in the dichotomous choice can be recovered in the confidence judgment" (70:92). Similarly, Smyth (1986) used a 5-point confidence-rating scale with native speakers on a grammaticality judgement task and found that it allowed for far greater interpretation of his (anaphora) data.

Thus, it was considered here that a confidence-rating scale could help provide an additional measure of information concerning the degree to

which L2 learners choose null-prep as a linguistic hypothesis. It is of particular interest to see whether subjects are as confident in accepting incorrect null-prep sentences as they are in judging grammatical sentences.

The test was administered by the researcher to several classes containing (NNS) subjects, each class in a single session.¹⁰ At the top of page 1 of the test, subjects were asked to supply personal information, including:

Age
Gender
Native language
Other languages studied
Length of residence in the U.S.
Length of time they had studied English in school¹¹
Primary mode of acquisition (listening/speaking vs. reading/writing vs. both)

The test was given in a classroom setting with the teacher usually present. Instructions were presented orally. However, a separate "instruction sheet" was distributed so that subjects could read the instructions if they so preferred. The test took approximately one hour, but was "untimed" and paced according to the needs of each particular class.

Subjects practiced on several model sentences before the test began, including both grammatical and ungrammatical sentences, with a range of different error types. These practice items included sentences with verbs requiring prepositions and sentences with verbs which did not. When a sentence was incorrect because a preposition was omitted, this fact was

¹⁰ Native speaker (NS) subjects were given the test in small groups or individually.

¹¹ They were instructed to include their length of study before coming to the US. Because instruction varied (e.g. from one hour a week to twenty), the answers, given in terms of "years" and "months", were not meaningful and were, therefore, discarded.

discussed and the sentence was corrected appropriately by all the subjects as the researcher walked around the room to check. All the sentences, and the subjects' reactions to them, were discussed with the group before the test began.

In addition, as reported in the previous section, the first seven sentences of the test were still "practice sentences" although subjects did not know that to be the case. This was to ensure that, by the time the targeted sentences were approached, subjects were completely comfortable with the task that was required. Subjects were given time at the end to go back over their answers, if they so desired.

The task was presented both orally and visually; that is, each sentence was read aloud by the experimenter as subjects listened and, if they wished, followed the written sentence which they had in front of them; then subjects were encouraged to read the sentence again to themselves. After hearing and seeing a sentence, subjects were asked to indicate, in writing, whether it was *good* (grammatical) or *bad* (not grammatical) in English (either formal or conversational). During the practice session, the researcher had emphasized that informal, conversational sentences were to be considered *good* as long as they were used by native speakers in everyday speech. If a sentence was judged *bad*, it then had to be corrected by insertion or deletion or rearrangement of words, as the subject judged appropriate. Finally, subjects indicated "*how sure*"

they were of their answer by responding to a 5-point confidence rating scale (which they also practiced with during the pre-test session):

very sure ____/____/____/____/____ very unsure

As the test proceeded, subjects were also encouraged to ask about any lexical item they did not know, so that it could be defined during the test session.¹² The control group of NS was given the same set of instructions and the same test. See Appendix B for the actual test.

3.3 Results

3.3.1 Scoring of the data

SUBJECT VARIABLES:

All the information elicited in the questionnaire section of the test, as listed in the previous section, was coded. The following were analyzed as dependent variables in the analysis:

Proficiency levels:	Levels 3-4 were coded as "1"= Low Levels 5-6 were coded as "2"= Mid Levels 7-8 were coded as "3"= High
Native language:	These were coded separately (N=18)
Gender:	Male vs. female was coded.
Age:	This was coded by (absolute) number and then grouped for purposes of the analysis.
Other languages studied:	The number of other languages studied was coded by (absolute) number.
Years in the US:	This was coded by (absolute) number.
Mode of acquisition:	A three-way distinction was coded: a) oral; b) visual; c) both.

¹² In fact, only the low-level group had trouble with two words: *teddy bear* and *clown*.

TEST ITEMS:

NS and NNS subjects' tests were coded and scored by the experimenter. Items were analyzed across individual sentences and individual subjects.

The 27 target sentences (those with omitted prepositions) were coded for the three types of response:

1. Good vs. Bad judgements.

For all target sentences, a judgement of *good* was an incorrect answer. A judgement of *bad* indicated that a subject did not accept the sentence as it was presented. However, the type of correction made (i.e. the correct insertion of a preposition vs. an incorrect alteration of the sentence) would determine whether the subject's answer was accurate or not.

2. Confidence rating.

Subjects inserted a check-mark in one of the five sections of the scale, which were marked as ranging, left to right, from "very sure" to "very unsure":

very sure ____/____/____/____/____ very unsure

Responses were later coded from 1 to 5, with "1" corresponding to "very unsure" and "5" corresponding to "very sure".

3. Type of correction made, if a sentence had been judged bad.

The type of correction made was essential for determining if a response included the necessary preposition insertion. All types of corrections were coded under several headings, which are shown in Appendix C and discussed below.

The Declaratives (D)

1. If a declarative sentence was judged *good* :
 - a. it was scored as *no subcategorization* for that verb.
2. If a declarative sentence was judged *bad* , the correction was scored as follows:
 - a. If an inaccurate correction was made (i.e. no insertion of the required preposition), it was scored as *no subcategorization* for that verb.
 - b. If the correction included the insertion of a preposition, the item was scored as *correct* (= PiP or PS).
 - c. If the sentence was corrected in another way (i.e. changing words so that a preposition was not required), the item was scored as *correct, but don't use for test*. For example:

The young girl waited the school bus this morning.

corrected to:

The young girl took the school bus this morning.

However, since this did not indicate that the subject knew the correct subcategorization for the targeted verb, it was not counted for purposes of determining the extent of null-prep.

The Questions and Relative Clauses

Questions (Q) and relative clauses (RC) were coded and analyzed separately, but the procedure for scoring them was the same and will be described as Q/RC below.

If a subject scored *correct* on a given declarative, but only as in 2b. above

AND:

3. If the Q/RC was judged *good* :

a. the Q/RC was scored as *null-prep*.

4. If the Q/RC was judged *bad*, the correction of it was scored as follows:

a. If an inaccurate correction was made (i.e. no insertion of the required preposition), other than b. below, it was scored as *null-prep*.¹³

b. If a wh-pronoun (*which* or *that*) was inserted in a Ø-COMP relative, without insertion of a preposition, it was scored as a special case of *null-prep*.¹⁴

c. If a preposition was inserted in two places, it was scored as *double P* For example:

Q: For which bus did the young girl wait for this morning.

RC: That's the bus for which the young girl waited for this morning.

d. If a preposition was inserted along with its object (pronoun), it was scored as *pronoun retention*. For example:

That's the bus which the young girl waited for it this morning.

e. If the correction included insertion of a preposition it showed that a subject had acquired pied-piping or preposition stranding so this was

¹³ There were some cases where the sentence was judged *bad*, but it was not corrected. This was coded as *correction missing* and was scored separately. To ensure the most rigorous and conservative analysis, missing corrections were not considered as *null-prep*.

¹⁴ This response was scored separately, for purposes of discussing the data along the lines of the syntactic analysis to be presented in Chapter 4.

scored as *correct*. If the Q/RC was corrected in another way (as in 2c above), it was also scored as *correct*, but coded separately. Again, both of these represented a non-null-prep response. While the insertion of a preposition was coded by pied-piping vs. preposition stranding, these were not scored separately for this analysis which was specifically concerned with null-prep vs. a *correct* insertion of a preposition. (Findings related to PiP vs. PS responses may be used in a future study.)

5. The confidence rating scale was scored for all targeted sentences.

It should be noted that correct vs. incorrect prepositions were coded separately. However, again for the purposes of maintaining a conservative analysis, the inclusion of any preposition meant that null-prep was not being exhibited; therefore, both correct and incorrect prepositions were scored together. However, a future analysis could utilize the correct vs. incorrect preposition distinction to help examine the developmental order of accurate preposition acquisition.

3.3.2 Analyses

The data were analyzed on the basis of contingent percentages; that is, the verb + preposition in a question or a relative clause were examined if and only if an individual subject demonstrated accurate subcategorization for that verb in the corresponding declarative. Frequencies and means across subjects and sentences are displayed in tables within the text. Where relevant, results of the control group of native speakers precede the results of the non-native speakers for each factor analyzed. In the work reported below, Analyses of Variance (ANOVA) were used to determine the

statistical significance of factors between subject groups. For within-group comparisons, paired samples t-tests were performed.

The Subcategorization of V+P in Declaratives:

The basis for scoring a null-prep response was determined by the accuracy with which a subject demonstrated basic subcategorization frames for the verbs + prepositions.

The subcategorization data for each verb+preposition were, therefore, analyzed separately and the results are shown in Tables 3.3 and 3.4 for native and non-native speakers respectively. The raw numbers (N) and the percentages represent the correct subcategorization of the targeted verbs.

TABLE 3.3. Correct subcategorization for V + P in declaratives: NS (N=40)

<u>V + P</u>	<u>Number Correct</u>	<u>% Correct</u>
dance with	40	100
pay for	40	100
wait for	40	100
apply for	40	100
complain about	39	97.5
worry about	39	97.5
play with	38	95.0
live with	38	95.0
talk about	37	92.5

Notes :

1. Abbreviations: V + P = verb + preposition; NS= native speakers of English.

TABLE 3.4. Correct subcategorization for V + P in declaratives: **NNS** (N=196)

<u>V + P</u>	<u>Number Correct</u>	<u>% Correct</u>
live with	152	77.6
talk about	128	65.3
dance with	107	54.6
worry about	105	53.6
play with	101	51.5
wait for	86	43.9
pay for	65	33.2
complain about	64	32.7
apply for	54	27.6

Notes :

1. Abbreviations: V + P = verb + preposition; NNS= non-native speakers of English.

Among the native speakers (Table 3.3), subjects had 100% accurate subcategorization for *dance with*, *pay for*, *wait for*, and *apply for*; 97.5% for *complain about* and *worry about*; 95% for *play with* and *live with*; and 92.5% for *talk about*. Paired t-tests showing multiple comparisons indicated that these differences did not reach significance, even between the highest (100%) and the lowest (92.5%) percentages. That is, *dance with* vs *talk about* were not statistically different: [T(39)=-1.78, p=.08].

Among the non-native speakers (Table 3.4), the highest percentage of accurate subcategorization occurred with *live with* (77.6%).

This was possibly because the targeted sentences,

Which family did the young man live two years ago?
This is the family (which/that/Ø) the young man lived two years ago.

encouraged use of either *live with* or *live in*, and both were accepted as correct. It is further possible that *live in* is a highly frequent combination, which could have skewed the data in its favor.

Other V+P combinations ranged widely in accuracy: *talk about* (65.0%); *dance with* (54.6%); *worry about* (53.6%); *play with* (51.5%); *wait for* (43.9%); *pay for* (33.2%); *complain about* (32.7%); *apply for* (27.0%).

In paired t-tests showing multiple comparisons, significance was reached between several pairs as shown in Table 3.5.

TABLE 3.5. Significance of differences in mean percentage of subcategorization accuracy for V + P in declaratives: NNS

<u>V + P</u>	<u>Paired t-test score</u>
live with	
talk about	T(195)= 3.42, p=.001
talk about	
dance with	T(195)= 2.39, p=.01
dance with	
worry about	(ns) T(195)= .23, p=.82
play with	(ns) T(195)= .85, p=.40
wait for	T(195)= 2.42, p=.01
worry about	
play with	(ns) T(195)= .48, p=.63
wait for	T(195)= 2.38, p=.02
play with	
wait for	(ns) T(195)= 1.67, p=.10
pay for	T(195)= 4.66, p<.0001
wait for	
pay for	T(195)= 2.60, p=.01
pay for	
complain about	(ns) T(195)= .14, p=.90
apply for	(ns) T(195)= 1.49, p=.14
complain about	
apply for	(ns) T(195)= 1.55, p=.12

Notes:

1. Abbreviations: V + P = verb + preposition; NNS= non-native speakers of English; (ns) = not significant at the .05 level.

This clearly indicates that the same learner may acquire subcategorization features for different verb/preposition combinations at different stages in the acquisition process.

While subcategorization for the preposition *for* seemed to be acquired less accurately than the others on the whole, this is most likely related to the particular verb/preposition combinations rather than the preposition itself. (This point is more clearly shown in the analysis across the three prepositions which appears in Table 3.18 below.) Too few verb + preposition combinations were tested in this study to resolve this issue definitively. It could be partially sorted out in future work by testing the same three verbs (*wait, pay, apply*) in combination with different prepositions; alternatively, the preposition *for* could be tested with other verbs to see if higher percentages of accurate subcategorization are obtained. There does not seem to be any particular pattern for the other prepositions. Bisyllabic *about*, which could be argued to be the most salient of the three prepositions, does not appear to be consistently superior to the others. Rather, it is more likely that the frequency counts of these particular V+P combinations¹⁵ in a non-native speaker's input can help explain the acquisition data here.¹⁶

¹⁵ While frequency counts have been published for verbs alone, there are no such data on V+Ps or V+PPs to my knowledge.

¹⁶ A further possibility is direct transfer from the L1 of certain V+P combinations in which the preposition may be subsumed by the V, as one word. Such an explanation is unlikely given the range of L1s in this study, but this factor might be taken into consideration in future studies.

The Occurrence of Null-Prep:

The means for null-prep acceptance in questions and relative clauses are shown in Table 3.6.

TABLE 3.6. Mean percentage and SD of null-prep acceptance X sentence type for native speakers and non-native speakers

<u>Sentence type</u>	<u>N-subj</u>	<u>N-subcat</u>	<u>%-subcat</u>	<u>Mean-NuP</u>	<u>SD</u>
<u>Native Speakers:</u>					
Questions	40	351	97.5%	1%	3%
Relative Clauses	40	351	97.5	2	4
<u>Non-native Speakers:</u>					
Questions	196	862	48.8	47	40
Relative Clauses	196	862	48.8	54	39

Notes:

1. Abbreviations: N-subj= the total number of subjects: N-subcat= total number of accurately subcategorized declaratives, which represents the total possible null-prep trials; %-subcat= percentage of accurate subcategorized declaratives across total tested (196 X 9 V + Ps); Mean-NuP= percentage of null-prep acceptances in possible null-prep trials; SD = standard deviations.

Among native speakers, there is very little evidence of null-prep, as expected. The mean percentage for null-prep acceptance in questions is 1%. In relative clauses, the mean is 2%. This represents an insignificant difference in a paired t-test [$T(39)=-1.43$, $p=.16$].

Among non-native speakers, the mean for null-prep acceptance in questions is 47% and in relatives, 54%. This difference reached

significance in a paired t-test [$T(181)=-2.70$, $p=.008$], showing that null-prep occurs to a greater extent in relatives than in questions. In fact, the implication is that PiP/PS is learned first in questions, and later in relative clauses where null-prep is maintained longer. This general ordering occurs across most, though not all, lexical items, as will be shown later.

An ANOVA was performed to compare null-prep acceptance between the native speaker control group and the non-native speaker test group. A high degree of significance between the two groups was reached for both questions and relatives, respectively [$F(1,220)=57.02$, $p<.0001$]; [$F(1,220)=75.55$, $p<.0001$].

It is thus clear that the existence of null-prep among second language learners of English is a real phenomenon. Further analyses were performed in order to understand (a) its developmental sequence; (b) the extent to which it is maintained; (c) the conditions under which it occurs; and (d) the factors which may influence its appearance. The results of these analyses will now be reported.

In order to see whether there is a true developmental pattern away from null-prep and towards PiP or PS, a analysis was done by proficiency level. That is, it was predicted that as proficiency level increases, there is a gradual decrease in the appearance of null-prep as stranding or piping is acquired. This is clearly shown to be the case for both questions and relative clauses.

Table 3.7 indicates the mean percentage for null-prep in questions and relative clauses among NNS at three proficiency levels.

TABLE 3.7. Mean percentage and SD of null-prep acceptance X proficiency level for questions and relative clauses: **NNS**

<u>Prof Lev</u>	<u>N-subj</u>	<u>N-subcat</u>	<u>%-subcat</u>	<u>Mean-NuP</u>	<u>SD</u>
Questions:					
Level 1	55	151	30.5%	69%	36%
Level 2	66	283	47.6	52	38
Level 3	75	428	63.4	30	33
Relative Clauses:					
Level 1	55	151	30.5	78	29
Level 2	66	283	47.6	57	36
Level 3	75	428	63.4	36	35

Notes:

1. Abbreviations: NNS= non-native speakers of English; Prof Lev= proficiency level; N-subj= total number of subjects; N-subcat= total number of accurately subcategorized declaratives, which represents the total possible null-prep trials for a given proficiency level; %-subcat= percentage of accurately subcategorized declaratives at a given proficiency level; Mean-NuP= percentage of null-prep (relative to number of possible null-prep trials) at a given proficiency level; SD= standard deviations.

For questions, the mean at level 1 is: 69%; level 2: 52%; level 3: 30%. An ANOVA demonstrated that there was a significant overall main effect for these three levels of proficiency level [$F(2,179)=17.89$, $p<.0001$]. A Scheffé test indicated a significant difference between each of the three levels Scheffé range: 3.49, $p=.05$. Thus, a NNS at the lowest level of proficiency is likely to accept null-prep in a significantly higher percentage of cases than a NNS at the mid-level of proficiency. Similarly, a mid-level subject accepted null-prep in a significantly higher number of cases than one at the most advanced level.

Likewise, the mean for null-prep in relatives was analyzed by proficiency levels. The mean here at level 1 is: 78%; level 2: 57%; level 3: 36%. A combined ANOVA and Scheffé indicated that the mean percentage of null-prep acceptance was significantly different between all levels of proficiency [$F(2,179)=21.29, p<.0001$]. Scheffé range: 3.49, $p=.05$. These results, along with those in questions, clearly demonstrate that as subjects increase in proficiency, there is a corresponding decrease in the occurrence of null-prep. This developmental pattern is exhibited in both questions and relatives.

To determine whether a subject's native language influences the appearance of null-prep (i. e. whether null-prep is at least partly the result of L1 transfer), it is important to know which languages exhibit the phenomenon. This will be briefly summarized, at this point, and presented in detail in the following chapter.

In summary, there is no language described to date which is reported as permitting null-prep in questions. In relative clauses, a different story emerges. Here, null-prep appears in Japanese, Korean, Chinese, Greek, and Brazilian Portuguese, but is not permitted in the standard dialects of Spanish and French, and is never permitted in German, Italian, and most other languages. The primary languages of the subjects in this study were Japanese, Korean, Chinese, and the romance languages. Thus, if L1 transfer were operating, it would be expected that subjects from these various languages would show clear differences for null-prep in relatives and never exhibit null-prep in questions.

It has already been shown that null-prep is clearly exhibited in questions in L2 English, so it is evident that this cannot be the result of L1 transfer. In fact, a more serious problem arises since the evidence of null-

prep in questions suggests that second language learners may be displaying a grammar that is outside the realm of natural language phenomena. I shall return to this issue in Chapter 5.

Tables 3.8 and 3.9 show the appearance of null-prep in questions and relatives, respectively, across 18 native language groups. The order in which the L1s are listed in the tables range from the highest to the lowest percentage of null-prep acceptance. The highlighted L1 groups are those which have 9 or more subjects.

TABLE 3.8. Mean and SD percentages of null-prep acceptance X L1 in questions: **NNS**

L1	QUESTIONS				
	N-subj	N-subcat	%-subcat	Mean-NuP	SD
Eur. Port	1	1	11 0%	100%	00%
Hebrew	2	5	27.7	80	00
Spanish	22	91	45.9	66	37
Korean	23	88	42.5	62	42
Thai	7	28	44.4	61	32
Polish	2	11	61	50	71
Indonesian	2	9	50	50	71
Persian	1	4	44.4	50	00
Braz. Port	4	25	69.4	49	44
Japanese	91	421	51.4	45	37
French	9	46	56.7	40	45
Chinese	18	47	29	39	38
Arabic	2	12	66.6	19	9
Italian	4	16	44.4	17	24
Greek	1	9	100	11	00
Turkish	2	13	72.2	10	14
German	4	29	80.5	3	6
Maltese	1	7	77.7	00	00

Notes:

1. Abbreviations: L1= native language; NNS= non-native speakers; N-subj= total number of subjects; N-subcat= total number of accurately subcategorized declaratives, which represents the total possible null-prep trials for a given L1; %-subcat= percentage of accurately subcategorized declaratives for a given L1; Mean-NuP= percentage of null-prep for a given L1; SD= standard deviation.

TABLE 3.9. Mean and SD percentages of null-prep acceptance X L1 in relative clauses: **NNS**

L1	RELATIVE CLAUSES				
	N-subj	N-subcat	%-subcat	Mean-NuP	SD
Eur. Port	1	1	11.0%	100%	00%
Spanish	22	91	45.9	69	33
Italian	4	16	44.4	65	47
Thai	7	28	44.4	64	39
Korean	23	88	42.5	62	37
Braz. Port	4	25	69.4	62	37
Chinese	18	47	29	56	45
Japanese	91	421	51.4	53	37
Persian	1	4	44.4	50	00
Indonesian	2	9	50	50	71
French	9	46	56.7	39	35
Arabic	2	12	66.6	37	18
Hebrew	2	5	27.7	33	00
German	4	29	80.5	24	40
Turkish	2	13	72.2	21	1
Greek	1	9	100	11	00
Polish	2	11	61	00	00
Maltese	1	7	77.7	00	00

Notes:

1. Abbreviations: L1= native language; NNS= non-native speakers; N-subj= total number of subjects; N-subcat= total number of accurately subcategorized declaratives, which represents the total possible null-prep trials for a given L1; %-subcat= percentage of accurately subcategorized declaratives for a given L1; Mean-NuP= percentage of null-prep for a given L1; SD= standard deviations.

In Table 3.8, it can be seen that subjects from languages as disparate as Spanish and Korean have almost the same rates of accurate subcategorizations (45.9% and 42.5% respectively) and accept null-prep at almost equal rates: 66% and 62% respectively. Similarly, Japanese and French subjects, with accurate subcategorizations of 51.4% and 56.7% respectively, accept null-prep at very similar rates: 45% and 40%,

respectively. These similar results occur, again, among subjects from very different languages. In an ANOVA and Scheffé test, with L1 as the main effect, the results for null-prep acceptance did not reach significance between any two L1 groups [$F(17,164)=1.56, p=.08$]; Scheffé range: 7.57, $p=.05$. It must be acknowledged, though, that the unequal numbers of subjects in the language groups and, especially the very small numbers in some, make it difficult to accept these tests of statistical significance with confidence. Crucially, however, subjects of almost all L1s exhibit null-prep in questions to some extent, even though null-prep DOES NOT occur in questions in any of their languages (see Chapter 4).

Similar results are apparent for relative clauses as shown in Table 3.9. Here, Spanish and Korean are highlighted and show that they have almost equivalent numbers of subjects ($N=22$ and $N=23$) as well as closely-matched accurate subcategorizations, making them suitable languages to compare. However, as noted above (and in greater detail in Chapter 4) Spanish is a language that does not permit null-prep in most dialects¹⁷ but does require PiP (the form generally claimed to be unmarked); Korean relative clauses, on the other hand, exhibit null-prep and do not permit PiP. If subjects were transferring from the L1, these differences should be reflected in the null-prep results. The findings show, however, that Spanish and Korean subjects accept null-prep in relative clauses at almost equal rates: 69% and 62% respectively. Similarly, French and Chinese subjects, accept null-prep at almost equivalent rates: 40% and 39%. These similar results occur, again, among subjects from languages with very

¹⁷ Null-prep occurs in the vernacular dialects of Puerto Rican and Venezuelan Spanish, though not in their standard dialects. Spanish-speaking subjects in this study were from the Dominican Republic, Colombia, and Spain where the dialects do not permit null-prep.

different patterns of null-prep and PiP: French requires PiP and permits null-prep primarily in some Canadian vernacular dialects (while the subjects in this study spoke European French); null-prep occurs in Chinese relative clauses, with some restrictions, and PiP is not permitted. Again, such differences should be reflected in the results if subjects were transferring from the L1; but this was not the case. In addition, as in questions, null-prep appeared among subjects from almost all L1s, including others where the construction is prohibited in relatives (e.g. Italian, European Portuguese, and German). An ANOVA indicated that the L1 was not a significant factor in the appearance of null-prep in relatives for NNS across 18 different language backgrounds [$F(17,164)=1.22$, $p=.27$]; Scheffé range: 7.57, $p=.05$. In order to interpret these tests of significance with confidence, it will be important to replicate these results in a study with larger numbers of subjects from directly contrasting L1 backgrounds: those L1s which clearly permit null-prep and those which clearly prohibit it.

At this time, these results, especially for questions, can be taken as tentative support for the claim that the native language of a second language learner is not responsible for the appearance of null-prep. Furthermore, the nature of the L1 does not seem to influence the degree to which null-prep is exhibited by non-native speakers of English of varied linguistic backgrounds.

To test whether other subject variables influence the appearance of the phenomenon, I analyzed the factors of age, gender, number of other foreign languages studied, mode of acquisition, and years in the US. The following factors did not reach statistical significance on the ANOVAs that were performed for questions and relative clauses. For gender, the mean

rate for null-prep acceptance in questions among females was 45%, and among males it was 38%. These differences were not significant [$F(1,164)=.22, p=.64$]. In relative clauses, the mean rate of null-prep acceptance among females and males, respectively, was 55% and 51%; this difference was not significant either [$F(1,164)=.95, p=.33$].

Similarly, the number of years a subject had lived in the United States (excluding Puerto Rico) was not significant. The groups compared were: those who had lived in the US less than 2 1/2 years, 2 1/2 and 5 1/2 years, and over 5 1/2 years. Subjects in these groups accepted null-prep in questions, respectively at a rate of 43%, 37%, and 37%. In relatives, null-prep was accepted by subjects within these groups, respectively at 53%, 49% and 56%. The differences in null-prep acceptance between these three groups were not significant in questions nor in relatives, respectively [$F(2,176)=.09, p=.91$] [$F(2,176)=.16, p=.85$]. However, it should be noted that the last group contained only 7 subjects, while the first group had the largest number (164) and would be expected to comprise most of the subjects at the lower levels of proficiency. Any interesting comparison between these groups would, therefore, be difficult to make.¹⁸

As noted earlier, it had been expected that the mode of acquisition might be a significant variable in the appearance of null-prep. It was thought that subjects who learned the language orally would be more prone to a null-prep response, since it appears that vernacular languages of the world permit null-prep more commonly than formal, written languages (at least among prepositional languages - see Chapter 4). This did not prove to

¹⁸ In addition, there were some subjects who had left the US and come back, some several times. It was not clear how to code these subjects so they were eliminated from this analysis.

be the case. The following subjects were compared: those whose primary mode of acquisition was *visual* (i.e. they had learned the L2 mostly by reading and writing), those whose primary mode of acquisition was *oral* (i.e. they had learned the L2 mostly by listening and speaking), and those who had learned the L2 in both modes equally. The mean rate of acceptance for null-prep in questions for each group, respectively, was 40% , 44% and 44%. Null-prep acceptance in relatives for each group respectively was 51%, 56%, and 53%. On an ANOVA, with reported mode of acquisition as the main effect, differences in mode of acquisition did not reach significance for either questions or relative clauses, respectively [F(2,171)=.55, p=.58]; [F(2,171)=.26, p=.77]

The factors of age and "other languages studied" (i.e. whether or not a subject had studied a third, or more, language), turned out to be significant in some respects, so their means are reported in Tables 3.10 and 3.11.

TABLE 3.10 Mean proportion of null-prep acceptance by subjects within a given age group: **NNS**

AGE	QUESTIONS			RELATIVE CLAUSES		
	N-subj	Mean	SD	N-subj	Mean	SD
A.						
under 30	130	42%	39%	130	52%	39%
over 30	23	68	36	23	59	38
B.						
under 25	83	46%	39%	83	56%	38%
over 25	70	47	40	70	49	39

Notes: 1. Abbreviations: NNS= non-native speakers of English; N-subj = number of subjects in each age group; SD = standard deviations.

The null-prep means for subjects under and over the age of 30 are reported in Table 3.10A. For those subjects under 30, the mean for questions was: 42% and for relatives: 52%. For subjects over 30, the mean for questions was: 68%, and for relatives: 59%. In an ANOVA, with age as the main effect, these differences were significant for questions only: [$F(1,151)=8.76$, $p=.003$]. In the case of relatives, the effect of age was not significant: [$F(1,151)=.79$, $p=.37$]. The data for questions may suggest that older L2 learners of English develop accurate PiP/PS rules, and perhaps other grammatical structures, at a slower rate (and perhaps less proficiently) than learners who are younger do.

To further determine the age at which the difference in questions becomes significant, I re-examined this factor by dividing the NNS subjects in half, the median age being 25.2. The null-prep data were then analyzed, with two factors +/-25 years, as shown in Table 3.10B. This time, the difference did not reach significance on an ANOVA for either questions [$F(1,151)=.02$, $p=.88$] or relative clauses [$F(1,151)=1.03$, $p=.31$]. It also appears to be true that the age range of 25-30 years has the lowest null-prep acceptance: about 34% in questions, which is superior to both the older and the younger group. This pattern of results is not easy to interpret and will be set aside for further research.

Table 3.11 reports the results of +/-other languages studied; that is, two groups of subjects are compared: those who had studied at least one other foreign language in addition to English (+OLS), and those for whom English was the only other language studied (-OLS).

TABLE 3.11 Mean proportion of null-prep acceptance by subjects according to +/- other languages studied (O.L.S.): **NNS**

+/- O.L.S.	QUESTIONS			RELATIVE CLAUSES		
	N-subj	Mean	SD	N-subj	Mean	SD
+ O.L.S.	34	30%	36%	34	38%	40%
- O.L.S.	148	51	39	148	58	37

Notes:

1. + O.L.S. indicates that subjects have studied at least one other foreign language in addition to English; - O.L.S. indicates that subjects have studied no other foreign languages other than English.

2. Abbreviations: NNS= non-native speakers of English; N-subj = number of subjects in each category; SD= standard deviation.

Table 3.11 shows the means for the two groups compared here: +OLS =30% for questions and 38% for relatives; -OLS = 51% for questions and 58 % for relatives. An ANOVA showed the factor of +/-OLS to be significant for both questions [$F(1,180)=8.46$, $p=.004$] and relative clauses [$F(1,180)=7.21$, $p=.008$], indicating that null-prep occurs to a lesser degree among those who have studied more than one foreign language. This may suggest that adults become more analytic or conscious of grammatical structures as a third and subsequent languages are acquired. That is, perhaps L2 learners approach the task of language learning more consciously than L1 learners do which suggests that the more languages adults learners acquire, the better they become at the task. Of course, it is also possible that better language learners are the ones who choose to learn more languages.

Percentage of Null-Prep across lexical items

Questions and relative clauses were analyzed across individual verbs + prepositions (V+Ps). The results appear in Tables 3.12-3.17, including instances of null-prep and PiP/PS. (The category of *pronoun retention* constituted negligible amounts of data and the category of *double P* contributed no data at all. Both have been omitted from the analysis.) For the control group of native speakers, the percentages across nine verbs + prepositions for each of these factors are shown in Tables 3.12 and 3.13, in questions and relatives respectively.

TABLE 3.12 Frequency distribution across subjects for each V + P in QUESTIONS: NS

V + P	SUBCAT		NULL-PREP		PiP or PS	
	N	%	N	%	N	%
talk about	37	92.7			36	97.3 ¹⁹
complain about	39	97.5			39	100
worry about	39	97.5			39	97.5
dance with	40	100			40	100
play with	38	95.0			37	100
live with	38	95.0	2	5.3	36	94.7
pay for	40	100			40	100
wait for	40	100			40	100
apply for	40	100			40	100

Notes:

1. These numbers represent the percentages across subjects per lexical verb + preposition.
2. Abbreviations: V + P = verb + preposition; NS = native speakers of English; Subcat = the number (N) and percentage (%) of accurately subcategorized declaratives, representing the total possible null-prep trials for each V+P; PR = pronoun retention; PiP = pied-piping; PS = preposition stranding.
3. "PiP or PS" constitutes the only "correct" response.

¹⁹ Note that a rate of less than 100% does not necessarily mean that null-prep occurred. Recall that subjects sometimes corrected a sentence in another way (e.g. changed the verb) which was not coded as a PiP/PS response. In addition, sometimes responses were omitted.

TABLE 3.13 Frequency distribution across subjects for each V + P in
RELATIVE CLAUSES: NS

V + P	SUBCAT		NULL-PREP		PiP or PS	
	N	%	N	%	N	%
talk about	37	92.5			40	100
complain about	39	97.5	3	7.5	36	90
worry about	39	97.5	1	2.6	38	97.4
dance with	40	100	1	2.5	38	95
play with	38	95.0			37	97.4
live with	38	95.0	1	2.5	37	97.4
pay for	40	100			40	100
wait for	40	100			39	97.5
apply for	40	100			40	100

Notes:

1. These numbers represent the percentages across subjects per lexical verb + preposition.
2. Abbreviations: V + P = verb + preposition; NS = native speakers of English; Subcat = the number (N) and percentage (%) of accurately subcategorized declaratives, representing the total possible null-prep trials for each V+P; V + P. = verb + preposition; PR = pronoun retention; PiP = pied-piping; PS = preposition stranding.
3. "PiP or PS" constitutes the only "correct" response.

The very small number of null-prep acceptance for each pair in the above tables does not permit meaningful statistical analysis. It can be clearly seen that PiP/PS acceptance for each V+P in questions is, at least, 94.7%, and in relatives, at least, 90%. These results may be compared with those for the non-native speakers whose acceptance of null-prep across nine verbs + prepositions is shown in Tables 3.14 (for questions) and 3.15 (for relatives).

TABLE 3.14 Frequency distribution across subjects for each V + P in QUESTIONS: NNS

V + P	SUBCAT		NULL-PREP		PiP or PS	
	N	%	N	%	N	%
talk about	128	65.3	47	36.7	76	59.4
complain about	64	32.7	21	33.3	39	61.9
worry about	105	53.6	39	37.5	62	59.6
dance with	107	54.6	39	36.8	62	58.5
play with	101	51.5	38	38.4	57	57.6
live with	152	77.6	44	28.9	103	67.8
pay for	65	33.2	25	38.5	35	53.8
wait for	86	43.9	32	37.6	50	58.8
apply for	54	27.6	24	44.4	30	55.6

Notes:

1. These numbers represent the percentages across subjects per lexical verb + preposition.

2. Abbreviations: V + P. = verb + preposition; NNS = non-native speakers of English; Subcat = the number (N) and percentage (%) of accurately subcategorized declaratives, representing the total possible null-prep trials for each V+P; PR = pronoun retention; PiP = pied-piping; PS = preposition stranding.

3. "PiP or PS" constitutes the only "correct" response.

TABLE 3.15 Frequency distribution across subjects for each V + P in RELATIVE CLAUSES: NNS

V + P	SUBCAT		NULL-PREP		PiP or PS	
	N	%	N	%	N	%
talk about	128	65.3	55	43.0	67	52.3
complain about	64	32.7	31	45.6	35	51.5
worry about	105	53.6	43	41.0	58	55.2
dance with	107	54.6	54	50.9	42	39.6
play with	101	51.5	61	60.4	31	30.7
live with	152	77.6	58	38.7	79	52.7
pay for	65	33.2	24	36.9	35	53.8
wait for	86	43.9	29	34.1	54	63.5
apply for	54	27.6	21	38.9	32	59.3

Notes:

1. These numbers represent the percentages across subjects per lexical verb + preposition.
2. Abbreviations: V + P = verb + preposition; NNS = non-native speakers of English; Subcat = the number (N) and percentage (%) of accurately subcategorized declaratives, representing the total possible null-prep trials for each V+P; PR = pronoun retention; PiP = pied-piping; PS = preposition stranding.
3. "PiP or PS" constitutes the only "correct" response.

As earlier indicated, general acceptance of null-prep by non-native speakers (in both questions and relative clauses) is highly significant when compared to that of native speakers. When comparing Tables 3.12 and 3.13 for NS with Tables 3.14 and 3.15 for NNS, it can clearly be seen that this holds across all verbs and prepositions. In addition, within the non-native subjects there were differences in acceptance of null-prep from one V+P to another. T-Tests indicated a significant difference for null-prep acceptance in questions for almost all pairs involving *live with* which showed the lowest null-prep: *live with/talk about* [T(113)=2.45, p=.02; *live*

with/complain about [$T(58)=3.23, p=.002$; *live with/worry about* [$T(85)=2.49, p=.01$; *live with/play with* [$T(84)=2.75, p=.007$; *live with/pay for* [$T(58)=2.12, p=.04$; *live with/wait for* [$T(79)=3.35, p=.001$; *live with/apply for* [$T(50)=5.22, p<.0001$. The statistics were similarly significant in questions for almost all comparisons with *apply for*, which showed the highest null-prep but not for any other V+P combinations.

In the case of relatives among NNS subjects (Table 3.15), there were also differences in the percentage of null-prep acceptance depending on particular lexical items. These differences reached significance when other pairs (in addition to those involving *live with* and *apply for*) were compared: These included: *talk about /complain about* [$T(59)=2.26, p=.03$; *talk about /wait for* [$T(65)=2.39, p=.02$; *complain about /worry about* [$T(51)=-2.90, p=.005$; *dance with /pay for* [$T(46)=-2.12, p=.04$; *play with /pay for* [$T(49)=-2.37, p=.02$; *pay for /wait for* [$T(41)=2.71, p=.01$.

As expected, it appears that particular lexical items evoke more null-prep responses than others, (although, again, non-native speakers exhibited null-prep for all V+Ps at a significantly higher percentage than that exhibited by native speakers). To determine whether each V+P combination followed a similar pattern (i.e. showed a gradual increase from acceptance to non-acceptance of null-prep, along with an increase in PiP/PS) the pairs were analyzed across proficiency levels. It was hypothesized that each V+P would pattern in the same way. The results show that this hypothesis was supported.

Tables 3.16 and 3.17 show the percentage of each response (null-prep, pronoun retention, PiP/PS) in questions and relatives, respectively, across each V+P by proficiency level.

TABLE 3.16 Frequency distribution of V + P in QUESTIONS across subjects within given proficiency levels: NNS

V + P	SUBCAT		NULL-PREP		PiP or PS	
	N	%	N	%	N	%
talk about:						
level 1	21	38	12	57.1	8	38.1
level 2	50	77	21	42.0	26	52.0
level 3	57	76	14	24.6	42	73.7
complain about:						
level 1	5	9	4	80.0		
level 2	19	29	9	47.4	9	47.4
level 3	53		8	20.5	29	74.4
worry about:						
level 1	21	38	16	76.2	4	19.0
level 2	38	57	13	35.1	23	62.2
level 3	46	61	10	21.7	35	76.1
dance with:						
level 1	27	49	19	73.1	6	23.1
level 2	32	48	14	43.8	15	46.9
level 3	48	64	6	12.5	41	85.4
play with:						
level 1	21	38	13	65.0	5	25.0
level 2	30	45	13	43.3	16	53.3
level 3	50	67	12	24.5	36	73.5
live with:						
level 1	32	58	17	53.1	15	46.9
level 2	50	76	16	32.0	30	60.0
level 3	70	93	11	15.7	58	82.9
pay for:						
level 1	9	16	5	55.6	2	22.2
level 2	21	32	11	52.4	8	38.1
level 3	35	47	9	25.7	25	71.4
wait for:						
level 1	11	20	9	81.8	2	18.2
level 2	26	39	9	34.6	17	65.4
level 3	49	65	14	29.2	31	64.6
apply for:						
level 1	4	7	3	75.0	1	25.0
level 2	17	26	9	52.9	8	47.1
level 3	33	44	12	36.4	21	63.6

Notes :

1. Abbreviations: V + P = verb + preposition; NNS = non-native speakers of English; Subcat = the number (N) and percentage (%) of accurately subcategorized declaratives, representing the total possible null-prep trials for each V+P within a given proficiency level; PR = pronoun retention; PiP = pied-piping; PS = preposition stranding.

2. "PiP or PS" constitutes the only "correct" response.

TABLE 3.17 Frequency distribution of V + P in RELATIVES across subjects within given proficiency levels: **NNS**

V + P	SUBCAT		NULL-PREP		PiP or PS	
	N	%	N	%	N	%
talk about:						
level 1	21	38	17	81.0	2	9.5
level 2	50	77	23	46.0	24	48.0
level 3	57	76	15	26.3	41	71.9
complain about:						
level 1	5	9	5	100		
level 2	19	29	10	47.6	9	42.9
level 3	40	53	16	38.1	26	61.9
worry about:						
level 1	21	38	16	76.2	4	19.0
level 2	38	57	16	42.1	19	50.0
level 3	46	61	11	23.9	35	76.1
dance with:						
level 1	27	49	22	84.6	2	7.7
level 2	32	48	17	53.1	9	28.1
level 3	48	64	15	31.3	31	64.6
play with:						
level 1	21	38	20	95.2	1	4.8
level 2	30	45	20	66.7	7	23.3
level 3	50	67	21	42.0	24	48.0
live with:						
level 1	32	58	16	53.3	7	23.3
level 2	50	76	24	48.0	26	52.0
level 3	70	93	18	25.7	46	65.7
pay for:						
level 1	9	16	7	77.8	1	11.1
level 2	21	32	9	42.9	12	57.1
level 3	35	47	8	22.9	22	62.9
wait for:						
level 1	11	20	6	60.0	2	20.0
level 2	26	39	12	46.2	14	53.8
level 3	49	65	11	22.4	38	77.6
apply for:						
level 1	4	7	3	75.5	1	25.0
level 2	17	26	11	64.7	6	35.3
level 3	33	44	7	21.2	25	75.8

Notes :

1. Abbreviations: V + P = verb + preposition; NNS = non-native speakers of English; Subcat = the number (N) and percentage (%) of accurately subcategorized declaratives, representing the total possible null-prep trials for each V+P within a given proficiency level; PR = pronoun retention; PiP = pied-piping; PS = preposition stranding.

2. "PiP or PS" constitutes the only "correct" response.

In the case of every verb + preposition combination, there is an invariable decrease of null-prep as subjects move from level 1 to level 3, showing that null-prep begins as an early hypothesis and is gradually discarded as the learner acquires the correct grammatical construction. That is, there is a corresponding increase in Pip or PS for each V+P as subjects move from the lowest to the highest level of proficiency tested here.²⁰

Throughout the entire corpus of NNS data, there was only a single case of pronoun retention in questions (*worry about*) and one in relatives (*talk about*), both for the same subject at level 2 (a Turkish speaker whose L1 permits pronoun retention). The fact that a pronoun retention response was almost absent in the corpus could either mean that this option is not a distinct stage in the developmental process of PiP/PS acquisition (even for other subjects whose L1 permits pronoun retention²¹) or, possibly, that the design of this experiment did not encourage this response.²² Further research is clearly needed for exploration of this question, particularly since it relates to the linguistic issues which will be discussed in the following chapter.

²⁰ For one V+P in questions (*wait for*), performance at levels 2 and 3 was not significantly different. However, the difference between levels 1 and 3 shows a dramatic increase in PiP/PS.

²¹ There were other subjects whose native languages permit pronoun retention, including Hebrew, Persian, Arabic, and Greek.

²² Recall that subjects were asked to "correct" a sentence that was grammatically deviant. Although, the instructions clearly indicated that a correction could consist of more than one word, it is possible that subjects did not tend to utilize that option. Thus, this might be the reason why pronoun retention, which would require that a subject add an overt preposition as well as an overt object pronoun, almost never appeared.

It should be mentioned that the data were also analyzed for a category called "missing corrections", briefly discussed in Chapter 2 when the results of my pilot study were presented. This category represents a subject's non-acceptance of a null-prep sentence, but with no correction given. It may be that such responses indicate that a subject "senses" that a null-prep construction is deviant but is not quite sure why; this may suggest that for some subjects their own use of null-prep is due to a performance strategy, which provides them with a sufficient way to communicate the intended meaning even though the speaker knows that it violates the rules of grammar. However, it is also possible that a subject has rejected a test sentence for reasons which have nothing to do with prepositions, and/or has simply forgotten to correct it. Because it is not possible to interpret these responses, all such (missing correction) sentences have been excluded from the data and will not be further discussed here.

To show whether particular prepositions were included or omitted more than others, the null-prep means across *with* vs. *for* vs. *about* were analyzed. The results appear in Table 3.18.

TABLE 3.18 Mean proportion of null-prep acceptance by subjects across prepositions: **NNS**

PREPOSITIONS	SUBCATS		QUESTIONS		RELATIVE CLAUSES	
	N	%	Mean	SD	Mean	SD
ABOUT	297	50%	44%	45%	50%	46%
WITH	360	61	39	44	53	42
FOR	205	35	51	45	45	46

Notes:

1. Abbreviations: NNS= non-native speakers of English; Subcat = the number (N) and percentage (%) of accurately subcategorized declaratives, representing the total possible null-prep trials across verbs with each preposition; SD= standard deviations.

The table above shows the mean for *about* : 44% in questions, 50% in relatives; *with* : 39% in questions, 53% in relatives, and *for* : 51% in questions and 45% in relatives. T-Tests indicated that significance was reached between all pairs in questions: *about* / *with*

[T(138)=-2.80 p=.006]; *about* / *for* [T(102)=-2.69, p=.008]; *with* / *for* [T(109)=-5.95, p<.0001].

According to these data for questions, *with* is the most accurately acquired preposition, while *for* is the least accurately acquired one, and *about* lies somewhere in the middle. Phonological salience could not be offered as the reason for such results, since, under such a hypothesis, the bisyllabic preposition *about* would be expected to have the fewest instances of null-prep, which is not the case. As shown previously, it appears that the particular verb + preposition combinations account for variations in the occurrence of null-prep and the rate of PiP/PS acquisition, and that this is

lexically, not phonologically, determined. However, it is also the case that since null-prep occurs across all V+Ps in L2 English, albeit at varying rates, there are no constraints, lexical or phonological, on the existence of the phenomenon.

In the case of relative clauses, the means across the three prepositions did not reach significance for any one of the pairs tested: *about* /*with* [$T(138)=-.27, p=.79$]; *about* /*for* [$T(104)=-.74, p=.46$]; *with* /*for* [$T(109)=.15, p=.88$]. It could not be the case that acceptance of null-prep is a function of a particular preposition since the results in relatives are qualitatively the opposite of those in questions.

Earlier in this section (as shown in Table 3.6), it was reported that there was a significant difference, in general, between null-prep in questions and in relatives. While it has been argued that particular V+P combinations do not restrict the appearance of null-prep, it was also shown that these factors do have some effect on which lexical pairs are acquired more easily (exhibit more PiP/PS and less null-prep at an earlier stage of acquisition). It is interesting to see whether different prepositions in combination with their verbs all conform to the general pattern whereby null-prep occurs with less frequency in questions than it does in relatives (and, by implication, that the grammatical forms of PiP/PS are acquired in questions before relative clauses). Therefore, tests of significance were conducted across each preposition, with sentence type as the dependent variable. That is, Table 3.18 shows the mean proportion of null-prep acceptance for each preposition (across the three verbs it was paired with) in both questions and relatives. T-Tests indicated that V+Ps containing the preposition *about* showed a significant difference of null-prep acceptance in questions compared to relatives: [$T(148)=.15, p=.05$]; similarly,

differences between questions and relatives containing *with* were highly significant: $[T(169)=-4.01, p<.0001]$. This verifies the expected patterning and shows null-prep acceptance to be significantly higher in relatives than in questions, across these lexical items.

However, V+P pairs with the preposition *for* did not conform to the general pattern. Table 3.18 shows that null-prep was accepted in questions at a higher percentage (51%) than in relatives (45%). While null-prep acceptance in questions vs. relatives, here, reflects a trend in the opposite direction, the difference between questions and relatives did not reach significance: $[T(112)=1.40, p=.16]$. In any case, this trend could mean that the general process for acquiring PiP or PS (first for questions, then for relative clauses), is not uniform across all lexical items. However, it must be noted that only *apply for* was (once again) the V+P that countered the general pattern in the data, occurring in questions (see Table 3.14) at a rate of 44.4%, and in relatives (see Table 3.15) at 38.9%, in contrast to the rest of the corpus. Clearly, further research must be conducted with many different verbal complements to see whether the results with *apply for* are an aberration or not. At this point we can only conclude that for most, though not all V+Ps, null-prep occurs to a greater extent and is maintained until a later stage of acquisition, in relatives than in questions.

The final lexical variables investigated were the alternative relativizers²³ *which* / *that* / $\emptyset$ which appeared, equally, across all relative clauses in the three versions of the test (see section 3.2.2). Table 3.19 indicates the means across these relativizers.

²³ This term is used here to refer to both relative pronouns and complementizers. The implications of this important difference is detailed in the following chapter.

TABLE 3.19 Mean proportion of null-prep acceptance by subjects across relativizers: **NNS**

<u>Relativizer</u>	<u>N-subcat</u>	<u>Mean</u>	<u>SD</u>
WHICH	179	57.6%	68%
THAT	185	55.6	72
Ø	196	78.5	87

Notes:

1. "Ø" represents an empty COMP; that is, there is no overt relativizer.
2. Abbreviations: NNS= non-native speakers of English; N-subcat = the number of accurately subcategorized declaratives within each category, representing the total possible null-prep trials for a relative clause with a given relativizer; SD= standard deviations.
2. Relativizers refer here to both relative pronouns and complementizers.

Table 3.19 shows that the mean acceptance of null-prep in a *which* - relative is 57.6%. This contrasts with a *that* -relative: 55.6%. In a Ø- relative (i.e. where there is an empty COMP), acceptance is much higher: 78.5%. Paired T- Tests were performed to see if these differences were significant. Differences between *which* and *that* did not reach significance [T(195)=.34, p=.73], while differences between *which* and Ø were significant [T(195)=-3.17, p=.002]; similarly, differences between *that* and Ø were significant [T(195)=-3.27, p=.001].

One possible reason for this much higher proportion of null-prep responses with a Ø-relativizer, is that subjects were distracted by their judgement (incorrect for English) that a relative clause needs an overt complementizer. I determined that there was a mean of 31% responses (SD=61%) consisting of the insertion of a relativizer (either *which* or *that*)

without insertion of the preposition (i.e. null-prep). Thus, some subjects appear to hypothesize that a relativizer is necessary to introduce a relative clause (and the absence of such a form is deviant), while a preposition may be omitted. Alternatively, as previously suggested, subjects doing this particular task may be reluctant to correct a sentence by adding two items (the "necessary" relativizer and the preposition), and this may be why they leave out the second.

The confidence ratings

I have made the claim that second language learners choose a null-prep response as a considered decision, representing a distinct (albeit incorrect) linguistic hypothesis. This claim would be strengthened if the confidence rating scale shows null-prep to be a strong (*sure* or *very sure*) choice on the part of NNS in contrast to a guess or an *unsure* response. This proved to be the case.

Tables 3.20 and 3.21 indicate the results for native speakers and non-native speakers, respectively.

TABLE 3.20 Mean proportion of confidence ratings for null-prep acceptance vs. PiP/PS by an individual subject : NS

CONFIDENCE RATING	QUESTIONS			RELATIVE CLAUSES		
	N	Mean	SD	N	Mean	SD
<u>VS</u> - Null-prep	4	100%	00%	7	100%	00%
<u>VUS</u> - Null-prep	0	00	00	0	00	00
<u>VS</u> - PiP/PS	326	94	14	324	94	19
<u>VUS</u> - PiP/PS	7	2	5	10	3	6

TABLE 3.21 Mean proportion of confidence ratings for null-prep acceptance vs. PiP/PS: **NNS**

CONFIDENCE RATING	QUESTIONS			RELATIVE CLAUSES		
	N	Mean	SD	N	Mean	SD
<u>VS</u> - Null-prep	316	78%	34%	334	72%	36%
<u>VUS</u> - Null-prep	49	12	26	74	16	28
<u>VS</u> - PiP/PS	385	75	34	316	73	35
<u>VUS</u> - PiP/PS	82	16	31	92	20	32

Notes for Tables 3.20 and 3.21:

1. These tables report confidence rating data in questions and relatives, only in those cases where subjects had accurate subcategorization for the corresponding declaratives. The mean represents the rate of response for a particular category out of the total possible for that category (e.g. the mean VS-PiP/PS is the percentage of *very sure* responses out of all accurate PiP/PS answers; the mean VUS-Null-prep is the percentage of *very unsure* responses out of all null-prep responses).

2. Abbreviations: NS= native speakers of English; NNS= non-native speakers of English; N= number of responses for the particular category given; SD= standard deviations; VS= very sure; VUS= very unsure; PiP/PS= pied-piping or preposition stranding, representing a "correct" response.

First, to ensure that the task presented was not a difficult one for native speakers, the confidence ratings of the control group were analyzed. Table 3.20 clearly shows that subjects were usually *very sure* when they gave correct responses (PiP or PS): mean 94 % in both questions and relatives. Similarly, they were *very sure* when an incorrect (null-prep) response was given in questions and relatives: mean 100%, suggesting that they strongly believed their answer was correct. Since the numbers for null-pre acceptance were very low (4 in questions and 7 in relatives) and there were no particular test sentences that were consistently accepted with null-prep (i.e. difficult to judge accurately), I assume these were

performance errors. Finally, the fact that the native speakers were almost never *unsure* of their responses indicates that the sentences in the test were easy for them to judge.

Table 3.21 indicates the results for non-native speakers. Like native speakers, subjects here appear equally confident of a null-prep and a PiP/PS response: mean 78% and 75%, respectively, in the case of questions, and 72% and 73%, respectively, for relative clauses. Paired T-Tests showed no significant differences between these responses: For questions, the *sureness* differences between null-prep and PiP/PS were non-significant [$T(147)=.53, p=.59$]. Quite surprisingly, subjects were equally sure of relatives, which are more complex and generally later acquired. Here, as in questions, there were no significant differences in confidence ratings between null-prep and correct responses [$T(150)=.56, p=.57$].

I would suggest, then, that NNS subjects also generally found these sentences easy to judge; probably they did not respond at all to those they found difficult. The most reasonable interpretations appear to be that the confidence ratings indicated that subjects' answers were not guesses; that, despite the confidence ratings, the answers inevitably included some performance mistakes, as seen in the control group's null-prep data, but that these were a small portion of the corpus given the significantly high proportion of null-prep responses among non-native speakers; that the confidence ratings strengthen the hypothesis that answers given on the task represented true linguistic judgements of non-native speakers.

A final analysis was performed to check whether learners gradually increase in confidence as their proficiency level increases, as would be expected if their confidence ratings are realistic. These results appear in Table 3.22.

TABLE 3.22 Mean proportion of confidence ratings in general by an individual subject within a given proficiency level: **NNS**

Confidence Rating	Number of Cases	Mean	SD
VERY SURE			
Total population	194	71%	28%
Level 1	55	64	33
Level 2	64	70	24
Level 3	75	77	25
VERY UNSURE			
Total population	194	12	16
Level 1	55	16	20
Level 2	64	13	15
Level 3	75	9	13

Notes :

1. This table reports confidence rating data for all targeted responses combined; that is, for declaratives, questions, and relatives answered, regardless of subcategorization accuracy.
2. Abbreviations: NNS= non-native speakers of English; SD= standard deviations; VS= very sure; VUS= very unsure.

In Table 3.22, confidence ratings of all target sentences answered (including declaratives and regardless of subcategorization accuracy with correlated questions and relatives) were analyzed. Interestingly, the results showed that subjects of all levels indicate that they are *very sure* of their answers most of the time: mean 71%, while they are far less often *very unsure* : mean 12%. An ANOVA showed significant differences for a given response of *very sure* when proficiency levels were compared [$F(2,191)=3.68, p=.03$]. A Scheffé procedure, with ranges 3.49, $p=.05$, showed that while there was a generally upward trend in subjects' confidence as

they increased in proficiency, a significant difference obtained only between the lowest level (1) and the highest level (3).

These results were further analyzed according to type of sentence: declaratives, questions, relative clauses. This is shown in Table 3.23:

TABLE 3.23 Mean proportion of confidence ratings by sentence types and proficiency levels: **NNS**

VERY SURE	Number of Cases	Means	SD
DECLARATIVES			
Level 1	55	68%	33%
Level 2	64	74	24
Level 3	75	80	27
QUESTIONS			
Level 1	55	64	36
Level 2	64	73	26
Level 3	74	78	26
RELATIVE CLAUSES			
Level 1	55	60	34
Level 2	64	63	29
Level 3	74	75	27

Notes :

1. This table reports confidence rating data for all targeted responses, separated into sentence types, regardless of subcategorization accuracy.
2. Abbreviations: NNS= non-native speakers of English; SD= standard deviations.

Table 3.23 indicates that subjects are increasingly *very sure* of their responses as their language proficiency improves. This increase reaches statistical significance between the lowest and the highest levels of

proficiency for each sentence type examined: declaratives [$F(2,191)=3.11$, $p=.05$]; questions [$F(2,190)=3.56$, $p=.03$]; relative clauses [$F(2,190)=4.27$, $p=.01$].

Such results appear to indicate that subjects taking this test were relatively confident in their responses even at the lowest level, and that this confidence gradually increased as proficiency level increased. Further research will show whether confidence ratings strengthen or weaken conclusions from judgement data on L2 acquisition tests. The present results initially suggest that confidence ratings may prove to be fruitful, but it would be essential to find out whether subjects show discrimination in their responses across different tasks; thus, if they always indicate *very sure*, no matter how complex the test item, that may tell us something about their personalities or emotional states, but little about their linguistic aptitude.

3.3.3 General discussion of the results

The control group of native speakers demonstrated a high degree of accuracy for the subcategorization of verbal complements, with only a few errors which I would interpret as performance mistakes. Similarly, the control group rarely exhibited null-prep, and demonstrated a high degree of accuracy in questions and relatives requiring a pied-piping or preposition stranding response.

Since native speakers of English responded appropriately and quite accurately to the test, it can be concluded that the task presented to non-native speakers was not strongly biased towards null-prep responses. Thus, these native speaker controls serve as an important benchmark for

the analyses conducted among the L2 learners taking the same test. It must be emphasized that such control groups are a necessary element in the empirical research done on second language acquisition.

The results among the targeted population of non-native speakers provide answers to the research questions posed early in this chapter.

The robust null-prep results indicate that null-prep is a genuine hypothesis of L2 learners and one that is maintained, by some learners, at advanced levels of second language proficiency. It is exhibited to the greatest degree by learners at the earlier stages of acquisition and occurs at an increasingly lower rate as they advance in English language proficiency and acquire pied-piping or preposition stranding. The results show that L2 learners' subcategorization knowledge of verbs and their prepositions, as well as their knowledge of piping or stranding, appears to be lexically influenced; there were significant differences in the acquisition of different V + P combinations. This indicates the importance of analyzing data across lexical items, for as Hawkins (1987) argues, syntactic acquisition is strongly influenced by lexical factors and may proceed step by (lexical) step. Null-prep occurs regardless of lexical factors; that is, null-prep is exhibited with every verb + preposition unit, albeit at differing rates of acceptance. For most, though not all V + P units, the preposition is accurately included in questions to a greater extent than in relatives.

In general, then, null-prep occurs among beginning learners of English and declines as general language proficiency increases. It appears to be a linguistic hypothesis that is maintained, for some learners, through advanced levels of proficiency and is often part of a predictable process of PiP/PS acquisition.

The appearance of null-prep is related to some factors, and clearly uninfluenced by others. Generally, null-prep occurs to a greater extent in relative clauses than in questions, as already mentioned. This suggests a logical developmental sequence whereby PiP or PS (and perhaps other grammatical forms) are acquired as a gradual process, appearing first in less complex structures and later in more marked ones, as Bardovi-Harlig (1987) argues. The highest proportion of null-prep occurred in empty COMP relatives, a highly marked structure in natural languages, providing some support for this point. However, it is possible that this result was related to experimental artifacts, as noted.

On the other hand, there was no difference between the appearance of null-prep in *which* vs. *that* relatives, suggesting that the syntactic or lexical nature of the relativizer does not influence the acquisition of PiP/PS or the occurrence of null-prep. The importance of this finding will be evident in the following chapter.

Only one factor related to the nature of the subject population proved to be significant. Learners who already knew a second language showed less evidence of null-prep. It may be the case, in general, that such learners acquire subsequent languages with greater accuracy or in less time. It was tentatively suggested that prior language learning experience results in a more analytic approach to linguistic forms and a higher degree of metalinguistic awareness, both of which may be important in adult second language acquisition. Since children learn their native language non-analytically, this would suggest a difference between L1 and L2 learners. However, it may also be the case that adults who choose to learn several languages are inherently better language learners or more analytical in the first place. This issue has been investigated with bilingual

children (for example, see Eisenstat, 1980 and Ianco-Worall, 1972); apparently, early bilingualism results in better language learning ability later on. Further research among adult second language learners is needed to investigate this question.

Finally, and very importantly, the nature of a learner's native language did not influence the appearance of null-prep insofar as the numbers of subjects in this study allowed us to establish this with statistical confidence. Thus, in answer to the fourth research question raised above, it is maintained here that the null-prep phenomenon in second language acquisition is NOT attributable to the strategy of L1 transfer.

The remainder of this dissertation will be concerned with the final question: How can null-prep in L2 acquisition of English be explained? In order to investigate this question, it is essential to understand the place of null-prep in natural languages, its structural analysis, and how it compares in markedness with other related constructions. The following chapter will examine these issues.

Chapter 4: Linguistic Analysis of Null-Prep

4.0 Introduction

In the surface structure of questions and relative clauses, the placement of a preposition and its NP object may vary. One might expect to find the following options cross-linguistically:

1. movement of the preposition along with the object NP (=pied-piping):

Q: In which library was she reading?
RC: That's the library in which she was reading.

2. movement of the NP alone, leaving the preposition stranded in surface structure (=preposition stranding):

Q: Which library was she reading in?
RC: That's the library (which/that/Ø) she was reading in.

In addition, there are what we might call "gapless" constructions in which the relevant NP is not moved, and the PP is overtly realized in situ, providing another alternative which is more commonly found in relatives than in questions:

3. pronominalization of the object NP and retention of the preposition, with no movement (=pronoun retention¹). Not acceptable to most English speakers, it would be like:

Q: Which library was she reading in it?
RC: That's the library (which/that/Ø) she was reading in it.

¹ I will use this terminology (from Keenan and Comrie, 1977) rather than that of "resumptive" or "intrusive" pronouns, as in Sells, 1984. Sells' distinction is a compelling one: resumptive pronouns are true variables which are operator-bound, while intrusive pronouns are anaphorically-bound and occur in gapless constructions. In this thesis, I will not separate the two. However, if it is found that there is a strong relationship between a pronoun retention pattern and null-prep, then it may be important in future research to sort out the resumptive/intrusive distinction across the relevant languages.

Finally, there appear to be languages where the relative clause, though almost never the question, does not exhibit an overt preposition at all:

4. the whole PP complement is missing at surface structure (=null-prep).

If such a structure were acceptable in English, it would be:

Q: Which library was she reading?

RC: That's the library (which/that/Ø) she was reading.

In this chapter, I will examine this fourth option and investigate whether it is a single phenomenon, or one that may involve differing structural analyses across the languages in which it is exhibited.

The ultimate purpose of examining the linguistic status of null-prep will be two-fold. First, I will give evidence to show that null-prep is a natural language phenomenon. To do this, I will offer several examples of natural languages which, along with the Brazilian Portuguese example noted in Chapter 1, exhibit the null-prep phenomenon.

Assuming that null-prep is a genuine linguistic structure, I will then examine its relative markedness value on the basis of the markedness criteria established in Chapter 2, section 2.1. This examination is essential in order to determine whether the null-prep findings described in my experimental study can be explained by a markedness hypothesis. That is, I must examine whether null-prep can arguably be the unmarked value of the parameter, or at least be less marked than preposition stranding. If not, we must invoke something other than markedness considerations to account for the invention of null-prep by L2 learners of English.

It is important to acknowledge that pied-piping and preposition stranding may not comprise a unitary parameter at all. Kayne (1981, 1984) argues that preposition stranding is related to the manner in which Vs and Ps govern which can vary across languages, and the consequent restructuring possibilities between the constituents (as in Hornstein and Weinberg, 1981). More generally, the theory of Government and Binding stresses that parameterization and markedness must involve broad principles rather than particular grammatical structures. For example, Newmeyer (1987) reports the accepted position:

...learners do not acquire structures or constructions; they acquire rules and principles through whose interactions the former are derived. To the extent that markedness is a valid theoretical concept at all for acquisition research, it must therefore be one whose domain is these rules and principles... (1987:9)

It is most likely, then, that upon extensive analysis and interpretation, the structures relevant to this study will prove to be the outcome of interactions among several principles, each subject to its own parameterization, and concerned with government or case assignment or binding, etc. These various principles and parameters will presumably feed other, different, constructions also, and show up in a variety of different ways in languages.

This chapter will explore the cross-linguistic distribution of null-prep as well as its properties in specific languages since markedness theory employs both typological and within-language syntactic criteria, as outlined in Chapter 2.

4.1 The cross-linguistic distribution of null-prep

In this section, the linguistic data will serve two purposes. First, they will clearly show that null-prep exists in the world's languages, offering the necessary support for the hypothesis that null-prep is an option provided by UG, and hence a possible hypothesis for learners. Second, I will examine the extent to which null-prep occurs across languages - its frequency and implicational patterning - in order to suggest what its markedness value may be.

The frequency criterion, it should be understood, will always be inconclusive since it is impossible, in principle, to study more than a sample of the possible human languages; furthermore, we cannot know how representative that sample is or how it may have been skewed by historical forces. Rather, the implicational criterion, as indicated in Chapter 2, more clearly shows dependency relationships among constructions. However, while no strong conclusions can be drawn until the phenomenon can be examined more extensively, some preliminary data will be assembled here. These data suggest a pattern, to be investigated more definitively in future research.

That null-prep has rarely been documented in the linguistic literature may, in fact, be a testimony to its relative infrequency. Nevertheless, I have found some variety of null-prep in the following languages:

Brazilian Portuguese	Puerto Rican (PR) Spanish	Roviana
Venezuelan Spanish	Catalan	Chinese
17th C. French	Modern Greek	Quechua
Modern French	Old English	Japanese
Québécois/Montreal French	Modern English	Korean

I shall begin to sort out the phenomenon by classifying the conditions under which null-prep is exhibited across these languages, with examples from the relevant languages to illustrate these conditions. It will be important to establish the structural analysis of each instance of null-prep, since we cannot be sure that underlyingly they are all the same; this will be taken up in section 4.2.

4.1.1 Types of languages exhibiting null-prep

A. PREPOSITIONAL vs. POSTPOSITIONAL:

Null-prep commonly occurs in relative clauses in postpositional languages where pied-piping is not an option. Keenan (1985:154) reports that these languages, where relative clauses are prenominal, prohibit stranding and almost always omit the relevant adposition. He states: "...we have no clear cases where a prenominal RC gaps the object of a postposition leaving the postposition itself stranded in S(rel.) Thus the norm here, in English paraphrase, is to say *the stick I hit the dog....*" Such languages include Japanese, Korean, and Quechua.

In both Japanese and Korean, even where the postposition is obligatory in declaratives and interrogatives, it is prohibited in relative clauses. This occurs in both the standard and colloquial dialects. In Japanese:

- (1) a. Watashi wa sono ie ni sunde iru
 I top. that house post.-loc. live T-pres.
 'I live in the house.'
- b. Dono ie ni sunde imasu ka?
 That house post.-loc. live be T Q
 'Which house do you live in?'
- c. Sore ga watashi ga sunde iru ie.
 That-nom I nom live T house.
 'That's the house (that) I live in.'

Similarly, in Korean:

- (2) a. Nanun jipe santa.
 I-subj house-in live.
 'I live in the house.'
- b. Tangsin un enu jipe samnika.
 You which house-in live -Q
 'Which house do you live in?'
- c. Iketi nae ka sanun jip ita.
 That-subj I -subj live house pred.
 'That's the house (that) I live in.'

Keenan (1985) notes that Quechua is a rare example of a language which has prenominal relative clauses, but optionally omits the postposition:

- (3) Yaku-man yayku-shan roopa-(wan) chakikuykan
 water enter-which clothes-with they are drying
 'The clothes with which he entered the water are drying.'

When the postposition *wan* is omitted, the sentence becomes ambiguous, having a second, preferred, meaning:

'The clothes which entered the water are drying'

Thus in postpositional languages, the conditions under which null-prep is exhibited are essentially the same across languages. By contrast, the prepositional languages which exhibit null-prep do so under varying, though not dissimilar, constraints. This could suggest that a unified analysis will not serve to explain the phenomenon here. The prepositional languages where null-prep can be observed are the following: Colloq. Brazilian Portuguese; Catalan; Colloq. P.R. Spanish and Venezuelan Spanish ²; Modern Greek; 17th C. French; Modern European French; Québécois and Montreal French; Old English; Modern English; Chinese; and Roviana, a language spoken in New Georgia, Solomon Islands.

Roviana has a distinctive characteristic. Here, the omission of the relative clause preposition is obligatory, while in other prepositional languages it appears to be optional.³ Keenan and Comrie (1977:73) report that the preposition required in the Roviana declarative is deleted in relative clauses, as in:

- (4) a. Ele ponia Jone ~~koe~~ Mere sa buka.
 past give John to Mary the book
 'John gave the book to Mary.'
- b. Sa barikalege sapu ele ponia buka Jone
 the woman that past give book John
 'the woman that John gave the book to'

Here, there is an invariant relative marker *sapu* and an omitted preposition. The only other option in Roviana seems to be the particular

² Null-prep also occurs in other dialects of Spanish, under lexical identity (see section 4.1.2A. below).

³ In other null-prep languages, the alternative is an overt preposition which appears in a pronoun retention construction, to be discussed below.

cases where adverbial relative markers are allowed, as in English instances of *why*, *where*, *how much*, etc.:

- (5) a. Vekos Jone sa bereti pa tevelo.
 put John the bread at table
 'John put the bread on (the) table'
- b. sa tevelo vasina vekonia Jone sa bereti
 the table where put (by?) John the bread
 'the table where John put the bread'

In Chinese, according to J. Huang (personal communication), the adposition is obligatorily dropped; neither preposition stranding nor pied-piping is an option. The following example from Chinese is from Tarallo and Myhill (1983:58):

- (6) a. Wo zai zhuozi-shang fang shu
 I on table put book
 'I put the book on the table.'
- b. Wo fang shu de zhuozi hen da
 I put book (rel.) table very big
 'The table that I put the book on is very big.'

Tarallo and Myhill explain that "both the preposition *zai* and the postposition *shang* are deleted to form the relative."⁴ They further note that some prepositions cannot be deleted:

- (7) a. Wo gen zheige rén shuo hua
 I with this man speak
 'I speak with this man.'
- b. *Wo shuo hua de rén hen you qian
 I speak man very rich
 'The man I speak with is very rich.'

⁴ It may be suggested that what Tarallo and Myhill are terming a *postposition* is, more accurately, a *case-marker*, an uncertainty which also arises in Japanese.

Other null-prep prepositional languages have the alternative of PiP, or exhibiting an invariant relativizer with an overt PP (pronoun retention) or a non-overt PP (null-prep) in situ, as argued below in section 4.2. Thus, for these languages, null-prep exists as an optional structure.

For prepositional languages, null-prep appears to be a more variable phenomenon than that exhibited in the postpositional languages so far investigated, and one that is often prohibited (e.g. German, Hebrew, standard Spanish). It will be important to examine the different conditions under which these prepositional languages exhibit null-prep in order to determine appropriate analyses to explain the phenomenon. I will explore these conditions in the sections which follow.

B. NULL-PREP IN +/-PRONOUN RETENTION LANGUAGES

Most of the languages that exhibit null-prep seem also to have a pattern of pronoun retention, to some extent. These include the postpositional languages, mentioned here, where the pattern of this strategy varies: in Japanese and Korean, it is limited to the genitive construction;⁵ in Chinese (specifically, the Pekingese dialect), the pronoun retention pattern occurs for all relativized positions except that of subject.⁶

⁵ Facts about the genitive construction word order correlate so strongly with general characteristics of postpositional languages that Greenberg (1963:78) argues for a linguistic universal incorporating the two typologies into one. The relationship between a pronoun retention pattern in genitives and the strength of the null-prep pattern will also have to be further explored.

⁶ I do not have any pronoun retention data for Quechua, but this should be researched, along with related facts about other postpositional languages.

Roviana, again, patterns like many postpositional languages in that pronoun retention is limited to genitives. Among other prepositional languages, however, the correlation between null-prep and pronoun-retention is very strong. Such languages include: Colloq. Brazilian Portuguese; Catalan; Colloq. PR and Venezuelan Spanish; Modern Greek; Québécois; Modern French.⁷ Strikingly absent from this list is English, suggesting that English may require an independent analysis from other prepositional null-prep languages.⁸

In colloquial Brazilian Portuguese, for example, Thomas (1969:302) reports that a preposition can be omitted as long as the "sense of the sentence" is retained. Alternatively, "the lower levels of speech place the preposition at the end of the clause followed by a pronoun object":

⁷ I am assuming here that in Québécois and in other dialects of French, *y*, *en*, *lui*, etc. constitute cases of pronoun retention:

- i. C'est lui que je lui/y parlerai jamais plus.
'It is him that I will never talk to him again' (Vinet, 1979:1)

⁸ There are cases in English where pronoun retention exists. Sells (1984:4) notes that a certain dialect of English permits:

- i. I just saw a girl who Long John's claim that she was a Venusian made all the headlines.

Such cases, however, are very rare. Pronoun retention in English according to Kroch (personal communication) has, more often, been related to processing simplification strategies where an extra pronoun is maintained when a gap is very distant from its filler:

- ii. * I just saw the man that Mary would like to meet him.
- iii. ? I just saw the man that Mary hasn't met yet but would - no doubt about it - be crazy about meeting him.

- (7) a. *Esse é o cavalo que vou.
 That is the horse that (I) am going.
 'That's the horse that I'm going on.'
- b. Esse é o cavalo que vou nêle.
 That is the horse that (I) am going on him.

It seems to be the case, in general, that the prepositional null-prep languages resort to a pronoun retention pattern only when null-prep results in ambiguity; otherwise, the null-prep pattern is preferred. This will be shown below in examples (23) and (24) when the pragmatically-governed condition on null-prep is explored.

C. NULL-PREP IN +/- COLLOQUIAL LANGUAGES

Among the postpositional languages, null-prep appears in relative clauses in the standard, as well as colloquial, dialects.

In older prepositional languages, specifically 17th c. French and Old English, null-prep was prevalent in the standard dialect under the condition of lexical identity (see section 4.1.2 A, below). In general, however, null-prep is almost always associated with colloquial forms in prepositional languages. Following Ross (1967), this may suggest that the structure occurs in the gapless relatives that are also characteristic of these dialects; that is, when there is a base-generated relativizer and a prepositional phrase in the relative clause complement, the PP may, alternatively, be overt (pronoun retention) or non-overt (null-prep). The languages where null-prep appears to be limited to a colloquial dialect are the following: Catalan, Brazilian Portuguese; P.R. and Venezuelan Spanish; Modern French; Modern Greek; and Québécois/Montreal French. By contrast, I know of no language which permits null-prep only

in the standard dialect. This is a rather striking and unexpected correlation.

The null-prep construction in the colloquial dialect can be seen in the following examples from PR Spanish. The standard language requires the preposition in the relative clause:

- (8) a. Ella vive in esa casa.
 She lived in that house.
- b. Esta es la casa en laqual ella vivo el año padado.
 That is the house in which she lived last year.

The colloquial dialect, however, permits the omission of the preposition, when the relative pronoun [laqual] is replaced by the complementizer *que* :

- (9) Esta es la casa que ella vivo...
 That is the house that she lived...

In modern English, some null-prep structures are limited to colloquial dialects (e.g. *What year did you graduate?*); others, however, appear in the standard language (e.g. *I don't know the reason he left.*) suggesting, again, that an independent analysis may be required for English.

4.1.2 Identity conditions on null-prep

A. LEXICAL IDENTITY CONDITION:⁹

Within prepositional languages, there appears to be another cluster: languages which omit the PP in a relative clause only when the antecedent is an identical prepositional phrase. Such languages, all of which operate with pied-piping as an alternative,¹⁰ are: Catalan; 17th C. French; Modern French; Old English; Modern English; and a dialect of Spanish.

Hirschbühler and Rivero (H&R) (1981:599) illustrate the operation of the identity rule in Catalan. When the antecedent of a relative is a "non-distinct PP", deletion of a PP in COMP occurs; that is, after pied-piping, deletion occurs in COMP, and only the wh-complementizer *que* appears.¹¹ This is shown in their example, given here as (10):

- (10) a. Això va passar en aquella ciutat que hi ha tants
 This happened in that city that there are so-many
 carrers per urbanitzar.
 streets to plan.

⁹ The condition "under lexical identity" is characteristic of deletion rules, but that is not the implication here. I do not mean to beg the question of whether the null-prep phenomenon is the result of deletion; the term is being used here simply as a descriptive characterization of the contexts in which null-prep appears.

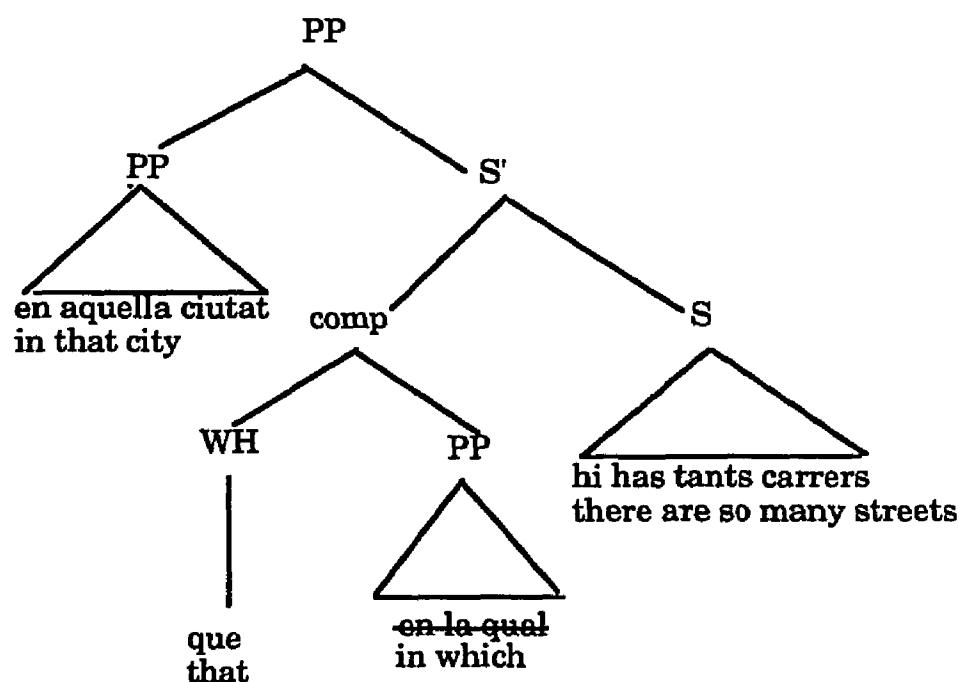
¹⁰ English, alone, has the additional alternative of preposition stranding. It would be important to see whether other languages that permit preposition stranding (e.g. the Scandinavian languages, Dutch) allow null-prep in any form.

¹¹ H&R propose that COMP has two positions: (1) WH; (2) a slot where *si* ('if' or 'whether') or a WH-phrase appears; one of these positions must be lexically realized, but a doubly-filled COMP is not permitted. H&R further identify *que* as a complementizer, not a relative pronoun, citing Kayne (1976) for French, Cinque (1978) for Italian, and Rivero (1980) for Spanish. Thus, *que* and a relative pronoun, such as *la qual* or *què* are in complementary distribution, the former filling COMP position (1) and the latter filling position (2). H&R assume that the PP is deleted in COMP, that is, after wh-movement.

- b. En aquella ciutat _s[comp [_{wh}[que] ~~en la qual~~]..._s[hi ha tants...]]¹²

H&R claim that this deletion is obligatory when the head of the relative is a PP and is identical to the PP in COMP. When the PP is deleted in COMP, the wh-complementizer *que* surfaces, as indicated in footnote 11. The structure is shown in (11):

(11)



H&R argue that independent motivation for such an analysis comes from sentences of the type *Pere ha parlat a favor del nen i contra la nena que estaven casats* "Peter spoke for the boy and against the girl that were

¹² Unfortunately, H&R do not present an example where the two prepositions differ, making deletion impossible. It will be assumed that such is the case, but additional data would strengthen their analysis.

married' where "no single NP can serve as antecedent for the relative - which must then be attached to the PP" (1981:599) as shown in:¹³

- (12) pp[pp[pp[a favor del nen] i pp[contra la nana]] s[que estavan...]]

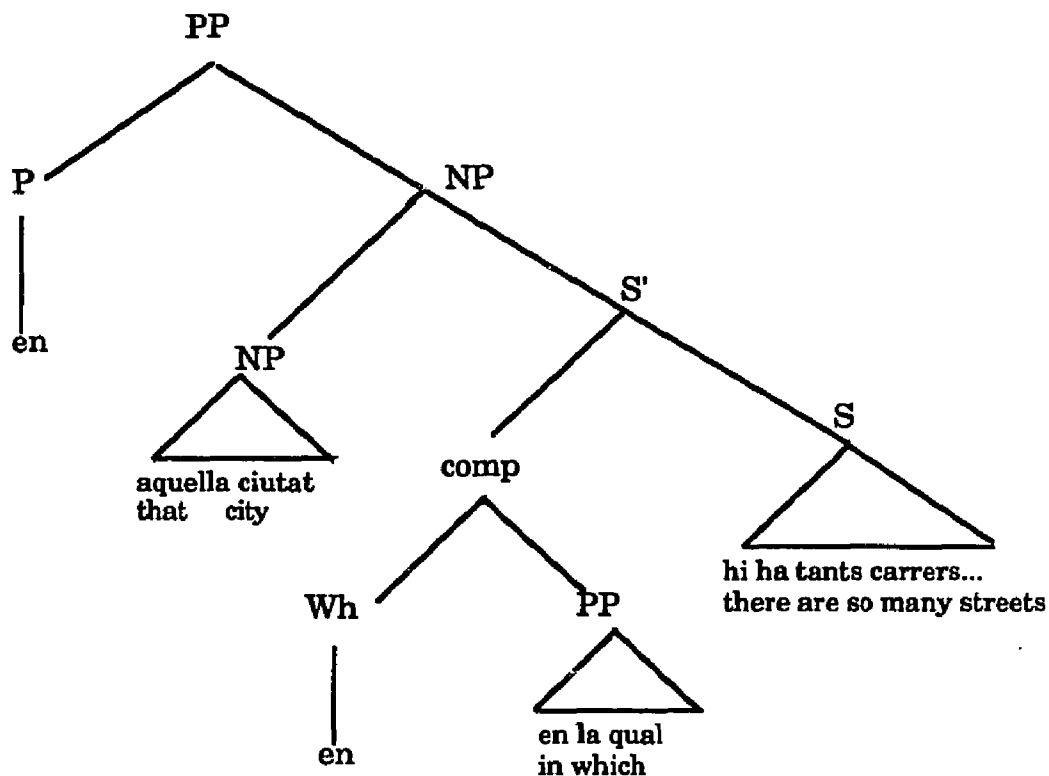
Catalan has a second option where the PP in COMP is retained. In such cases, H&R argue that the head of the relative is to be analyzed as an NP. Then the PP in COMP cannot be deleted since it is not identical with its antecedent. This is the case in their example, shown here as (13):

- (13) a. Això va passar en aquella ciutat en {la qual, que} hi ha
 This happened in that city in which there are
 tants carrers per urbanitzar.
 so-many streets to plan
- b. En aquella ciutat s[comp[wh[e] en la qual] s[hi ha ...]]

In contrast to (11), the head of the relative in (13) is an NP. It is lexically distinct from the PP in COMP which, therefore, remains overt. This is shown in (14):

¹³ Since this sentence is good in English too, one could claim that English has PP-headed relatives as well. In fact, such has been argued to be the case with free relatives (see section 4.2.5 below).

(14)



Here, H&R show a relative pronoun *la qual* preceded by the required preposition *en* ; the wh-complementizer position, filled by *que* in (11), is empty.

HR further show that some dialects of Spanish pattern like Catalan:

- (15) Fui a la ciudad [a la cual /que] fuiste tu.
I went to the city [to which/ that] went you

while French usually does not:

- (16) Je suis allé dans la ville [dans laquelle / *que]
 I went to the city [to which / *that]
 tu es allé.
 you went.

There are, however, a few cases where Modern French does exhibit null-prep under this identity condition. From Hirschbühler and Rivero:

- (17) Pierre s'est battu avec qui tu voulais qu'il sorte
 Pierre fought with whom you wanted that he go out.
 'Pierre fought with the person you wanted him to go out with'
 (18) ...au moment que je pénétrais dans la clarté d'un lampadaire
 at the moment that I entered into the light of a street light.

These examples seem to be the exception, however. French, in fact, appears to have moved away from null-prep under identity, for 17th century French commonly exhibited the same prep-deletion rule as present-day Spanish and Catalan:

- (19) Toutes ces illustres marques ne peuvent être
 All these illustrious marks cannot be
 conservées que par les moyens qu'elles ont été acquises
 preserved that by the means that-they were acquired

(From Guez de Balzac, *Prince* in
 Hirschbühler and Rivero, 1981:602)

Although she provides a different structural analysis, Allen (1980:285) similarly reports that in Old English "it was possible to delete a whole prepositional phrase by relativization, just in case the relativized prepositional phrase was identical with a prepositional phrase containing the head NP." Allen's analysis thus differs from that of H&R where the

head is argued to be a PP rather than an NP. (The significance of this difference will be further discussed in section 4.3.)

In Allen's examples, the omitted PP occurs only with [*ðe*] relatives where there is an invariable complementizer, and where preposition stranding (not pied-piping) is the alternative option. Thus:

- (20) Judas se swicola hraðe eode to ðam arleasum
Judas the traitor quickly went to the impious

ehterum ðe he ær gespræc.
persecutors that he earlier spoke (to).¹⁴

(From *Homilies of the Anglo Saxon Church*, in Allen, 1980:285).

In Modern English, we see a similar pattern which operates in free, as well as headed, relatives. (See section 4.13C below. More extensive discussion is provided in section 4.3 where null-prep in English is examined.)

B. PRAGMATICALLY-GOVERNED:

Among postpositional languages, the influence of pragmatics does not seem to be a relevant factor in the appearance of null-prep.

In many prepositional languages, however, discourse-related factors appear to be of considerable importance. Most of these languages allow null-prep, in relatives only, when a "basic" or "primary" reading of the verb + preposition is understood. In such languages there is a pragmatic link between the head noun and the empty NP in the embedded clause.

¹⁴ It is interesting to note, from this example, that the two prepositions *to* are not required to have the same meaning in order for the second *to* to be omitted.

While this does not apply to English, it is clearly exemplified in PR and Venezuelan Spanish, Catalan genitives, Modern Greek, and colloquial Brazilian Portuguese.

In Catalan, for example, Hirschbühler and Rivero report some cases of a null-prep genitive construction which is governed solely by contextual factors. "The acceptability of relative clauses with null-genitives depends...on the pragmatic (rather than syntactic) link that the speaker establishes between the N in antecedent position and a suitable NP in the embedded clause" (1981:604). Thus, while speakers might accept:

- (21) *el pare que hem visitat el fils*
the father that we visited the son

they would not accept:

- (22) **l'homme que hem visitat el fils*
the man that we visited the son

While the "link" between *pare* and *fils* in (21) is clearly evident, the relationship between *homme* and *fils* in (22) is not specific enough, and the overt preposition is required, as in (23):

- (23) *l'homme de qui hem visitat el fils*
the man of whom we visited the son

While Hirschbühler and Rivero report that Catalan limits its pragmatically-governed strategy for null-prep to a particular structure (i.e. the genitive form),¹⁵ Modern Greek, particularly the Northern

¹⁵ Carme Picallo (personal communication) suggests that null-prep in Catalan is not limited to the genitive, but, in fact, occurs in other relativized positions in the colloquial language. Further documentation of null-prep in Catalan may show evidence of this.

dialects, shows strong reliance on a discourse-related condition for null-prep in other relativized positions. From Maling (1979):

- (24) Aphtós ine ó ánthropos [pou agorázi gala]
 He is the man that he-buys milk
 'He is the man a. who buys milk'
 b. from whom he buys milk'
 c. for whom he buys milk'

Maling notes that the word in COMP in these sentences is always *pou* = *that*. She reads the above sentence as a three-way ambiguity that is only disambiguated when the head noun is changed (e. g. *baby* = for whom he buys milk; *milkman* = from whom he buys milk etc.)

Maling suggests, however, that a missing preposition is usually left out only when it can be unambiguously interpreted in its "basic reading":

- (25) Aphtó ine to moró [pou paizo]
 This is the baby that I-play
 'This is the baby that I play with.'

A "basic reading", then, has the preposition one is most likely associate with a particular verb and its object. Thus, in (25), one assumes that a baby is more likely to be played *with* than played *for*, *next to*, or *around*. If the sentence is to be interpreted with any of the latter meanings, the preposition is usually explicitly represented. Maling states that "the missing P in the relative clause is assumed to be that P which best fills the primary semantic relation between predicate and shared nominal" (1979:67).

It seems to be the case that any preposition may delete as long as it is pragmatically, if not syntactically, recoverable. In contrast to Maling's example (24), Ingria (1979) claims that cases of clear pragmatic ambiguity

usually require the pronoun retention pattern. Compare (26) and (27) from Ingria (1979:46):

- (26) to rafio pou doulevi (s'afto) ine mikro
 the office that he-works in-it it is small
 'The office that he works in is small.'
- (27) i yineka pou den boro na ziso *(xoris aftin) ine omorfi
 the woman that NEG I-can to I-live without her she-is beautiful
 'The woman that I can't live without is beautiful.'

In colloquial Brazilian Portuguese, the preposition is always omitted when its meaning is understood from the verb alone. According to Thomas (1969), this occurs in the informal speech of educated Brazilians as well as the "substandard" speech of the uneducated population. Evidence from Thomas appears as sentence (8) of Chapter 1, and is repeated here as (28b):

- (28) a. Falam da môca.
 They-talk about-the girl.
- b. Aquela é a môca que falam tanto..
 That is the girl that they-talk...so much.
 'That's the girl that they talk so much about.'

As in Greek, pronoun retention is utilized when a meaning other than the primary reading is intended. Recall the example from Thomas (1969) repeated here as (29):

- (29) a. *Esse é o cavalo que vou.
 That is the horse that (I) am going.
 'That's the horse that I'm going on.'
- b. Esse é o cavalo que vou nêle.
 That is the horse that (I) am going on-him.

Finally, French cases from Bouchard (1981:219) show that "non-strictly subcategorized prepositions" can delete if they have close semantic relations to their verbs. This can be seen in the following contrasts:

(30) a. Je coupe le fromage avec le couteau.
I cut the cheese with the knife.

b. le couteau que je coupe.
the knife that I cut (with)

(31) a. Je coupe avec le fil.
I cut with the wire.

b. *le fil que je coupe.
the wire that I cut (with)

In example (30b), *couper* and *couteau* are closely and unambiguously related in a way that *couper* and *fil* in (31b) are not. However, when a direct object is added to (31b) forcing an instrumental reading, the sentence is disambiguated without requiring the overt preposition:

(31) c. le fil que je coupe le fromage.
the wire that I cut the cheese (with)

Bouchard (1981:218-219) cites further examples where the preposition is "understood":

(32) a. Je pense à Pierre.
'I am thinking about Pierre.'

b. Si c'est le gars que je pense, il est ben correct.
'If it's the guy that I think, he is OK.'

(33) a. Je parle de Pierre à Jean.
'I am talking about Pierre to Jean.'

b. Le gars que je te parle, il est correct.
'The guy that I talk to you, he is OK.'

C. NO SEMANTIC CONTENT:

There are some particular cases, for example in popular French, colloquial Brazilian Portuguese, and Québécois, where the preposition is left out when it apparently serves no semantic function at all.

In popular French, it is acceptable to drop the preposition following *besoin*. This is true for both relatives and questions:

- (34) a. J'ai besoin d'un livre.
I have need of a book.
'I need a book.'
- b. C'est le livre dont/que j'ai besoin.
This is the book of which/that I have need.
'This is the book that I need.'
- c. De quel livre as-tu besoin?
Quel est le livre dont tu as besoin?
Quel livre as-tu besoin?
'Which book do you need?'

In Québécois, Vinet (1979:117) argues that "the non-appearance of the preposition is only possible when the preposition is part of a 'verbal complex'". Thus, in the following constructions the preposition may be omitted since it is part of a such a complex:

- (35) le plus important qu'il a pensé c'est ça
the most important that-he has thought is that
- (36) la maison que je viens là
the house that I come

By contrast, the preposition must be retained when it is not implicit in the semantic content of the verb:

- (37) a. elle ramasse des fleurs **avec** les enfants
 she picks up flowers with the kids
- b. *les enfants qu'elle ramasse des fleurs
 the kids that-she picks up flowers

In Brazilian Portuguese, some verbs require a semantically empty preposition before a noun or pronoun in the declarative. While this group may seem to fall under the pragmatically-governed condition described above, it is distinct in that it involves a preposition that does not have a separate, additional meaning from the verb; rather the verb appears to be transitive in quality:

- (38) a. Eu gosto **de** você.
 I love you.

In informal speech, however, these verbs lose their prepositions in relative clauses:

- (38) b. Você é a pessoa que eu gosto.
 You are the person that I love.

4.1.3 Constructions in which null-prep occurs

A. QUESTIONS:

Null-prep is prohibited in questions in postpositional languages. It is also only very rarely found in the interrogative form of prepositional languages. Data could be found in only rare instances of prepositional languages: in the idiomatic *besoin de* construction of popular French (as in (32c)), and in English as shown in examples (45b), (46b), and (47b) below. This is an important point that will be discussed in section 4.2.4.

B. HEADED RELATIVE CLAUSES:

Many languages that permit the null-prep construction do so in headed relatives, as shown in the examples above.¹⁶ Thus, the following languages exhibit null-prep in this construction (usually with restrictions):

Colloquial Brazilian Portuguese
Colloquial Venezuelan Spanish
Modern Greek
Modern French
Modern English
Roviana
Japanese
Korean

Colloquial PR Spanish
Catalan
17th C. French
Québécois/Montreal French
Old English
Quechua
Chinese

In English, for example, the relative clause in (39c) is permitted, without the obligatory preposition of the corresponding declarative in (39a) or question (39b):

- (39) a. He left for that reason.
 *He left that reason.
- b. For which/for what reason did he leave?
 *Which/what reason did he leave?
- c. the reason for which he left.
 the reason (that/?which/Ø) he left.

Such examples, however, are rare and limited to very specific lexical combinations to be investigated in section 4.3, which discusses null-prep in English.

¹⁶ Null-prep in free relatives has not been explored here, except for its occurrence in English. It will be important to know if null-prep languages allow the omission of the preposition in headless relatives, as in English. If not, there is further support for a distinct analysis for "null-prep" in English. This will be left for future research.

C. FREE RELATIVES:

Null-prep occurs in free relatives in French and in English (and perhaps in other languages, see footnote 16), under lexical identity. It will be shown in section 4.3 that the omission of the preposition in English headless relatives differs in some ways from its omission in headed relatives, suggesting that different analyses may be warranted. It will be important to know if such a distinction is also warranted in the null-prep languages examined here.

Bresnan and Grimshaw (1978) cite examples in English where the identity condition must be maintained. The examples are also restricted to temporals, locatives, or directionals, as in the following:

- (40) a. I'll live in the town that you live in.
 b. ?I'll live in the town that you live.
 c. I'll live in whatever town you live.
- (41) a. I'll move to the town that you live in.
 b. *I'll move to the town that you live.
 c. *I'll move to whatever town you live.

In French, the identity condition is followed, but null-prep occurs in free relatives that are not limited to temporals, etc. This was seen in (17), repeated here as (42):

- (42) Pierre s'est battu avec qui tu voulais qu'il sorte
 Pierre fought with whom you wanted that he go out.
 'Pierre fought with the person you wanted him to go out with'

4.1.4 Null-prep in local contexts

In a few cases, already mentioned, the existence of null-prep depends on the particular context or the particular preposition for which it may apply.

In certain dialects of French, including Québécois and Montreal French, a type of "preposition stranding" is restricted to a class of prepositions which have been termed "intransitive" ¹⁷(Vinet, 1979; Bouchard, 1981, 1884; Zribi-Hertz, 1984); that is, these prepositions may occur without objects, as in (43) from Vinet (1979:109):

- (43) a. la fille que je suis sorti avec
the girl that I went out with
- b. les gens que tu travailles pour
the people that you work for

Such prepositions are claimed by Bouchard (1984:91) to be "strong", in contrast to "weak" prepositions which may be omitted.¹⁸ This was seen in examples (33b) and (34b) from Bouchard (1981), which, as noted, Vinet (1979) termed part of a "verbal complex" in which the meaning of the preposition is not separable from the verb. This was also seen in the *besoin de* examples, and is shown again in Vinet's example of *pensé à* where the preposition is absent:

¹⁷ Presumably the term "intransitive" has been used because these very same verbs may appear without objects in declarative clauses.

¹⁸ Bouchard does not define "strong" and "weak", but the two classes appear to be in complementary distribution, at least in relatives. In particular contexts, however, strong prepositions (such as *avec*) may be omitted when the intended meaning is clear from the sentence. This was seen in examples (30b) and (31c) under the classification of "pragmatically-governed" conditions for null-prep occurrence. Weak prepositions, on the other hand, have the alternatives of pied-piping or being omitted; they may not strand.

- (44) le plus important qu'il a pensé c'est ça
 the most important he has thought is that

Finally, in English, null-prep in free relatives is restricted to adverbial constructions. In questions and headed relatives (except following *reason*, as in (39)), null-prep is limited to (some) temporal adjuncts:

- (45) a. He left on that date/bus.¹⁹
 *He left that date/bus.
- b. What/Which occasion/*bus did he leave?
 On which date/ bus did he leave?
- c. That's the date/*bus (that) he left.
 That's the date/ bus on which he left.
- (46) a. She ate at three o'clock/at the restaurant.
 *She ate three o'clock/the restaurant.
- b. At what time / restaurant did she eat?
 What time/*restaurant did she eat?
- c. That's the time (that) she ate.
 *That's the restaurant (that) she ate.
- (47) a. He graduated in June/on June 9th.
 He graduated *June/June 9th.
- b. What/which month did he graduate?
 On what/which date did he graduate?
 What/which date did he graduate?
 What/which month did he graduate?
- c. That's the month/date (that) he graduated.

The nature of the phenomena in English will be discussed in section 4.3.

¹⁹ *Date* here refers to the temporal noun.

On the basis of this preliminary typological exploration into null-prep, it is evident that null-prep exists in the world's languages, both postpositional and prepositional. Whether all occurrences of null-prep constitute the same phenomenon must be determined.

The following characteristics correlate with null-prep in prepositional languages, except for English (see section 4.3):²⁰

1. It always alternates with an overt resumptive pronoun.
2. It is always optional.
3. It never occurs in questions.
4. It is subject to subcategorization, semantic, or pragmatic recoverability restrictions.
5. It occurs with phonologically or semantically "weak" prepositions.
6. It occurs primarily in colloquial dialects and never appears in the standard dialect alone.

The following section will investigate these typological characteristics to determine a proper structural analysis for null-prep, and the extent to which such an analysis can be generalized across prepositional as well as postpositional languages.

²⁰ The extent to which these characteristics also correlate with postpositional languages will be left for further research.

4.2 The syntax of null-prep

4.2.1 Preliminary discussion

In the preceding section, a typological excursion across null-prep languages showed a general clustering of languages into a few categories,¹⁹ which may be relevant for syntactic analyses:

1. Prepositional languages:

a) where null-prep is exhibited primarily under lexical identity (17th c. French, Old English, Modern English free relatives, Catalan).

b) which have pronoun retention (Colloquial Brazilian Portuguese, Colloquial Puerto Rican (PR) and Venezuelan Spanish, Modern Greek, Québécois/Montreal French).²⁰

2. Postpositional languages (Japanese, Korean, Quechua).

3. The case of English.

In this section, I will examine these categories, as a basis for proposing a linguistic analysis of the null-prep structure. It is not possible to closely examine every language in which null-prep appears, so my

¹⁹ Some of the languages may exhibit several different constructions and hence belong to more than one category. Here I indicate only the cluster within which the strongest data from a particular language seem to fall. For instance, Catalan is listed under the category of lexical identity although it also exhibits pronoun retention. However, strong evidence of null-prep under the latter category is not yet forthcoming, but see footnote 15. In this summation, I am also setting aside the idiomatic instances of null-prep in Modern French.

²⁰ It is not clear whether Roviana belongs here or in a separate category since it is unique among prepositional languages, in requiring null-prep in relatives. Further analysis will be needed to show whether it has pronoun retention and other characteristics of null-prep languages listed at the end of section 4.1. According to my analysis presented at the end of this section, null-prep would be required in a prepositional language where null objects, in situ, are obligatory in relatives, as in Japanese and Korean; that is, the preposition would have to be null if preposition stranding were prohibited and the object always dropped. Until such time as these facts are examined in Roviana, I will not attempt to classify occurrences of null-prep in that language.

analysis will be based primarily on two languages considered in some detail, and the preliminary data I have accumulated from others. I cannot judge now whether further research on these other languages will support or challenge my hypothesis.

Having discussed null-prep under lexical identity in section 4.1.2 A, I will now examine null-prep in two prepositional languages with pronoun retention, specifically Greek and Brazilian Portuguese. I will provide detailed reviews of two studies, one on each of these languages, which include discussions of omitted prepositions in relative clauses. The observations and examples reported in the studies will help provide the basis for a preliminary examination of the phenomenon cross-linguistically. Since these two languages belong to disparate linguistic groups and a single analysis of null-prep is posited for both, it will be suggested that the analysis is likely to be even more widely generalizable, at least among prepositional languages.

I will also show that this syntactic analysis may be applicable to postpositional languages such as Japanese and Korean. However, it does not hold for English, which requires an alternative analysis. Thus it will be shown that "null-prep" in English is a different phenomenon from null-prep in the other languages examined here.

The purpose of this discussion will be to determine whether the L2 acquisition facts presented in Chapter 3 can be explained by reference to learners' knowledge of UG. In particular, does the analysis that second language learners are imposing on English questions and relative clauses, which leads them to generate null-prep constructions, lie within the realm of structural analyses evidenced by attested natural languages? If so, that is compatible with L2 learners' reliance on UG principles, and we can then

ask why learners are misled into choosing for English a wrong (though possible) grammar. But if not, and if our survey of languages is representative, then we will have some reason to doubt that L2 grammars respect UG.

The crucial linguistic questions turn out to be:

1. Does null-prep occur in a movement or a non-movement construction?
2. Is the COMP position in the relative clause containing null-prep filled by (a) a relative pronoun, or (b) a base-generated complementizer?
3. Does null-prep represent (a) a preposition which is present at deep structure but has been deleted at surface structure? (b) a base-generated empty PP with a phonologically null preposition? (c) no base-generated PP at all (since PPs are always optional)?
4. What are the parameters, and the relative markedness values of their settings, that license the null-prep construction?
5. What are the syntactic, phonological, semantic, and lexical restrictions on null-prep in a given language? Given that these restrictions do not seem to be identical in all languages, what are the limits on such parametric variation or peripheral constraints?
6. What are the recoverability options for null-prep constructions? And, though it is not central to the concerns of this thesis, what are the implications of such options for the putatively universal principle of recoverability?

4.2.2 Null-Prep in Greek

Ingria's (1981) comprehensive study on the syntax of Modern Greek includes an examination of relative clauses. His conclusions will be reviewed here and will serve to illustrate the operation of null-prep in Greek.²¹

Ingria reports that there are two general kinds of relatives in Greek:

1. Relatives which are introduced by *o opios* , as in:
'the wh'

(48) *to yrafio sto opio dulevi ine mikro*
the office in-the wh he-works it is small
'The office in which he works is small.' (p. 162)

In this construction, the definite article *to* as well as the relative pronoun *opio* constitute the "WH-phrase" and are both fully declined for case, number, and gender. In relative clause constructions such as (48), the wh-phrase, here introduced by a cliticized preposition (*se +to -->sto*), is fronted to the immediate right of the noun head in the familiar pied-piping fashion. Ingria presents examples of this movement construction for various relativized positions (see his p. 162).

2. Relatives which are introduced by *pu* ²² ('that'). In these cases, there are two general options. In the first, the relativized position shows an overt pronoun. This is what, in the previous section, was termed pronoun retention:

²¹ Unless otherwise indicated, the examples presented in this section come from Ingria.

²² This linguistic form has also been transliterated as *pou* in the literature, but I shall retain Ingria's spelling here.

- (49) O anθropos pu tu eδosa to vivlio ine plusios
 The man that to-him I-gave the book he-is rich.
 'The man that I gave the book is rich. (p. 175)

In the second, the object, along with a preceding preposition, may be optionally omitted under certain conditions, exemplifying what I have called the null-prep construction, which Ingria terms "preposition-deletion or preposition-drop".²³

- (50) To γrafiο pu doulevi (s'afto) ine mikro
 The office that he-works (in-it) it-is small
 'The office that he works in is small. (1979:46)²⁴

It should be noted here that some prepositions appear to strand; that is, they remain overt while their objects are null. Such cases are rare (occurring, for the most part, among adverbial prepositions) and may be influenced by extra-linguistic factors. (See discussion below and footnote 30, which provides the relevant example.) The important question of whether preposition stranding in Greek is comparable to stranding in a language like English will have to remain open.

THE STATUS OF PU AS A COMPLEMENTIZER

Determining whether the relative clause in Greek is a movement or a non-movement construction, and particularly whether the relativizer is a base-generated or a moved constituent, will be important to the analysis I present later on.

²³ I shall retain the terminology used by Ingria, and by Tarallo in the next section, although current linguistic theory does not generally assume a "dropping" or "deletion" process.

²⁴ The position of the PP, while different in (43) and (44) does not seem to influence the presence or absence of the constituent.

Ingria argues that *pu* is an invariant complementizer occurring in a non-movement construction. He states that:

a *pu* relative contains a base generated pronoun which is construed with the head of the relative through the operation of the discourse rule which binds pronouns. In all cases in which a "gap" appears in a *pu* relative, this gap is produced by an independently motivated deletion rule. (p. 164)

The operation of this rule will be described below.

According to current linguistic theory, wh-movement must always observe the island constraints due to subadjacency. The impossibility of violating these constraints has been utilized as evidence that wh-movement has occurred in particular constructions. (See, for instance, Vinet, 1979; Chomsky, 1981; Huang, 1984 and 1987; Cole, 1987. But also see Bresnan, 1970 and 1971.) Therefore, Ingria's most compelling argument for *pu* as the complementizer in a non-movement construction, and for *o opios* as a moved relative pronoun, is that a *pu* construction does not obey subadjacency, while an *o opios* construction must. From Ingria (1979:47):

- (51) O anθropos pu mas ekseplikse to yeyonos oti
 The man that us it-surprised the fact that
 o Yanis (ton) ide ine plousios.
 the John ACC him he-saw he-is rich.
 *'The man that the fact that John saw him surprised us is rich.'
- (52) *I yineka xoris tin opia mas ekseplikse to yeyonos
 The woman without the Wh us it-surprised the fact
 oti o Yanis den bori na zisi ine omorfi.
 that the John NEG he-can to he-lives she-is beautiful.
 *'The woman that the fact that John can't live without surprised us is beautiful.'

As a supporting argument, though not decisive in itself, Ingria notes that, like *that* in English, Greek *pu* is used to introduce clausal

complements to verbs²⁵ including a) verbs of perception (e.g. *vlepo* 'feel'); b) verbs of saying and knowing (e.g. *leo* 'say'; *ksero* 'know'); c) expressions of emotion (e.g. *ipume* 'regret' or 'be sorry') (p. 139). It also appears in result clauses:

- (53) *to xioni ixe stroθi ston kambo de stin*
 the snow had spread on-the country and on-the
politia toso pu ta skepase ola
 city so-much that them it-covered all.
 'The snow had spread over the country and the city so that it
 covered everything completely.' (p. 140)

To summarize, Ingria argues for a distinction in Greek between movement (*o opios*) and non-movement (*pu*) relatives. He shows a clear subjacency distinction between the two and reports that the omission of the preposition occurs only in the non-movement, non-subjacency-restricted construction. Importantly, null-prep never occurs in questions. Questions, unlike relative clauses, are clearly movement constructions in Greek. The questioned constituent (the *wh-pro* and its pied-piped preposition) is moved to initial COMP position, subject to subjacency. That preposition-drop is prohibited in questions (and this appears to be consistent across other null-prep languages as well) is a strong argument that null-prep is somehow inherently related to non-movement constructions, in which (as will be argued below) an empty category is base-generated and bound.

The distribution of these null-prep relatives, as it is characterized in Ingria's work, will now be examined, with some preliminary discussion of prepositions in Greek and the rule of "object-drop".

²⁵ *Pu* appears as a complementizer in alternation with *pos* and *oti*, which appear in some of the later examples here.

GREEK PREPOSITIONS

Ingria distinguishes two general categories of prepositions in Greek: "Simple Prepositions" and "Adverbial Prepositions".

Simple prepositions may only be followed by non-pronominal NP's or the "strong forms"²⁶ of the personal pronouns, and are of two kinds: (a) Primary prepositions, and (b) Secondary prepositions.²⁷ Primary prepositions are distinguished from secondary prepositions in the following ways:

1. They occur more frequently.
2. The primary prepositions *me* ('with' - instrumental), *se* ('to', 'toward', 'at', 'on', 'in') and *apo* ('from') may form "compound PPs" with adverbial PP's (see examples (56) and (57) below), which secondary prepositions can not.
3. Some primary prepositions cliticize to a following definite article by dropping their final vowel:

(54) *apo* + *tin* --> *ap'tin*, as in
 ap'tin *Maria*
 from-the Mary. (p. 136)

(55) *se* + *to* --> *sto*, as in
 sto *trapezi*²⁸
 to-the table (p. 169)

²⁶ Strong pronouns are those which are non-clitic (see pp. 80-81); they include, for example, the third person singular forms shown in (56a) and (57a): *aftos/aftu/afton*

²⁷ For a complete listing of the most common primary and secondary prepositions, see Ingria, p.135-6.

²⁸ Although *ap'tin* is written with an apostrophe between the morphological boundaries, *sto* has no such marking. This distinction is not explained and will simply be noted here.

In fact Ingria proposes, more generally, that primary prepositions are "clitics", while secondary prepositions are typically bi-syllabic and do not show evidence of cliticization.

Significantly, both classes of simple prepositions may be omitted under the particular restrictions which will be discussed below.

Adverbial prepositions ²⁹ are distinguished from simple prepositions in the following ways:

1. They can never take a non-pronominal NP or a strong pronoun.
2. The object of an adverbial preposition must always be cliticized in the genitive case and must remain overt.
- 3 They may be followed by simple PP's introduced by *se*, *me*, or *apo*, with the structure PP[P_{adv} [P_{simple} N]], as in:

(56) a. Mazi m'afton ACC together with him	or	b. mazi tu GEN together him	'together with him'
(57) a. Piso ap'afto ACC behind from-it	or	b. piso tu GEN behind it	'behind it' (p. 138)

Compound PP's such as those in (56a) and (57a) normally occur post-verbally. Since simple prepositions occur in Greek only with a lexically-realized noun or strong pronoun (see footnote 26), these simple prepositions are present in the above examples "only to allow an adverbial preposition to take a non-clitic N object" (p. 168). This permits the application of a subsequent rule of object drop (which only applies to accusative objects) and the rule which then deletes simple "stranded" prepositions. (See

²⁹ For a complete listing of the adverbial prepositions, see Ingria, p. 137-138.

discussions below on "object-drop" and "preposition deletion" for the specific details of these rule applications.)

There are also cases where the adverbial preposition in such cases drops as well, as in:

- (58) a. áphesa to vivlío páno stó trapézi
 I-left the book on in-the table
 'I left the book on the table.'
- b. aphtó eine to trapézi [pou áphesa to vivlío]
 This is the table that I-left the book
 'This is the table that I left the book on.'
 (Maling, 1977:66)

4. An adverbial preposition is usually overt when its object has been relativized:

- (59) To ktirion pu vriskete *(brosta tu) to aftokinito ine psilo
 The building that it-was-found (before it) the car it-is tall
 'The building that the car is parked in front of is tall' (p. 166)

Although Ingria does not elaborate on this last characteristic of adverbial prepositions, it seems to be the case, from Maling's example shown as (58) above, that the condition may be relaxed when the object is immediately preceded by a (deletable) primary preposition. Alternatively, it is conceivable that Ingria's classification of Greek prepositions is not entirely accurate, and that the "adverbial" *páno* may actually be non-adverbial, at least in some dialects.

(64) *Ida xθes
I-saw (him,her,it) yesterday.'

(65) a. Ides ton Yani? b. Ida xθes
you-saw the John I-saw yesterday
'Did you see John?' 'I saw him yesterday.' (p. 44)³³

4. In relative clauses, the omission of the accusative pronoun is more likely the less the distance between the NP head and the relativized object pronoun. Thus, in (66) the object pronoun is preferentially deleted:

(66) O anθropos pu (ton) iða ine plusios
The man that (him) I-saw he-is rich
'The man that I saw is rich.' (p. 164)

However in (67), the object pronoun *ton* is more likely to be overt:

(67) O anθropos pu lene oti nomizun oti (ton) iðe
The man that they-say that they-think that him he-saw

o Yanis ine plusios
the John he-is rich
'The man that they say that they think that John saw is rich.'
(p. 180)

Ingria therefore claims object-drop to be a discourse-sensitive rule (which operates in some dialects - see footnote 32), whereby the antecedent which permits the rule's operation may be separated from the omitted pronoun by

³³ It is important to state that this example and Ingria's general rules of object-drop in main clauses were not verified by my four Greek native-speaker informants. All of these speakers claim that while they allow null-prep in relatives to some extent (see the following section), their dialects do not freely permit null objects in main clauses. Assuming that their dialects differ from that of Ingria's informants, the essential point is that null objects in main clauses may not necessarily be related to null-prep in Greek relatives. (See also footnote 49.)

a sentence boundary. That is, the rule operates across syntactic configurations that are not constrained by sentence grammar.

THE RULE OF PREPOSITION DELETION

Ingria (1979) reports that in some Northern Greek dialects, prepositional objects and indirect objects are marked accusative, rather than genitive, the latter reflecting more standard Greek. Thus, the following sentence, while not acceptable in the standard language without a preposition and an indirect object pronoun, is permitted in the dialects of the North. From Ingria, 1979:

- (68) O anθropos pou Ø edosa to vivlio ine plousios
 The man that I-gave the book he-is rich
 'The man that I gave the book is rich.' (p. 46)

According to Ingria, simple prepositions will delete if their objects have undergone deletion, since such prepositions are (usually) not allowed to strand. Thus, he invokes two separate rules to account for the omission of the prepositional phrase:

1. Accusative object-drop
2. Preposition-deletion

The operation of these rules can be seen in cases such as (68) and, more clearly, in (50) repeated here as (69):

- (69) To yrafio pu doulevi (s'afto) ine mikro
 The office that he-works in-it it-is small
 'The office that he works in is small.' (1979:46)

Ingria notes, however, that the operation of preposition deletion is subject to certain conditions which, if not met, will prevent object-drop from applying

within a prepositional phrase.³⁴ The major constraint under which the preposition may be omitted concerns its recoverability. In a compound PP, a simple preposition may freely delete along with its object since it has no semantic content in this structure and serves as a "specified element" (see examples (56) and (57)); recall that simple prepositions serve in these constructions only to provide a strong object-pronoun for the adverbial preposition. However, the deletion of a simple preposition in a PP is more variable and depends upon its ability to be recovered.

The following shows a case where a secondary preposition followed by the required strong pronominal object may not delete because the sentence would be uninterpretable, as shown in example (23) from Ingria (1981:171), given here as (70):

- (70) I yineka pu den boro na ziso *(xoris aftin)
 The woman that NEG I-can to I-live without her
 ine omorfi
 she-is beautiful
 'The woman that I can't live without is beautiful.'

However, a primary preposition may be omitted when its sense can be understood from the context or from the distinctive subcategorization of a particular verb:

³⁴ It appears that Ingria is implying that preposition deletion applies first. If, and only if, it applies can (must!) the rule of pronoun-drop apply. However, it is also the case that restrictions on object-drop can prevent preposition deletion from applying in the relevant examples, since a derivation can be blocked if a rule that must apply cannot do so. It is, thus, obvious that the two processes are mutually dependent; this dependency will be more clearly explicated by my analysis in section 4.2.4.

- (71) a. Kanoun ta epipla apó ksylo.
 They-make the furniture from wood.
- b. Aphto eine to ksylo [pou kanoun ta epipla.
 This is the wood that they-make the furniture.
 'This is the wood that they make the furniture from.'
 (Maling, 1977:67)

Ingria offers the following generalization to account for the most usual cases:

Simple PP's may be absent when the meaning of the simple preposition is somehow 'subsumed' under or inferable from the meaning of the verb of the clause in which it occurs.
 (p. 173)³⁵

In summary, the operation of null-prep in Greek is generally subject to pragmatic restrictions along with the numerous constraints which apply to the optional rule deleting object-pronouns. Importantly, preposition deletion never occurs in questions and is exhibited only in non-movement relative clauses where it optionally alternates with the overt retention of the prepositional phrase. When deletion is permitted, however, it is the preferred option.

Finally, Maling notes that the geographical, syntactic, lexical and semantic restrictions on "null-prep" indicate that "this phenomenon is certainly highly marked" (1979:67).

4.2.3 Null-Prep in Brazilian Portuguese

Null-prep in colloquial Brazilian Portuguese is geographically more widespread than in Greek, where its use is limited to a particular region.

³⁵ This was similarly seen in the previous section when the "pragmatically-governed" condition on null-prep was illustrated with examples from Catalan (18), Greek (21) (22) (23), Brazilian Portuguese (25b), and French (27b) (28c).

There are other differences of detail between the null-prep phenomena in these two languages, to be described below, but their strong similarities will also be apparent.

Tarallo, in his 1983 dissertation, conducted an extensive quantificational analysis of Brazilian Portuguese (hereafter BP) relative clauses. This insightful study offers examples of null-prep in the language, and provides sufficiently detailed observations about the language to serve as a basis for the analysis of null-prep, to be suggested later.

Tarallo's description of the relative clause types in BP is similar to that of Ingria for Greek:

1. The "gap-leaving variant", commonly found in the standard written language and much less so in the spoken language. This is posited to be the result of wh-movement of the relativized NP into COMP; when this WH-NP is the object of a preposition, there is pied-piping. This occurs with several different forms of the relative pronoun, in contrast to Greek where *o opios* is the only one:³⁶

(72) O André, de quem eu gosto , é mais bonito
 André, of whom I am fond, is more handsome.³⁷ (p. 2)

This form, as seen in Table 4.1 below, is almost non-existent in vernacular BP when the relative pronoun is in a PP.

2. The non-standard "resumptive pronoun variant" where the gap position is filled with an overt pronoun that is coreferential with the head of the

³⁶ See Tarallo, p. 37, for a complete list of the relative pronouns in Brazilian Portuguese.

³⁷ All the examples in this section come from Tarallo, unless otherwise indicated.

relative clause. In BP, this variant is always introduced by *que* which, Tarallo argues, is an invariant complementizer. (His arguments will be reviewed below):

- (73) O André, que eu gosto dele, é mais bonito.
 André, that I am fond of him, is more handsome. (p. 2)

3. The non-standard "P(repositional) P(hrase)-chopping" variant, called null-prep in this dissertation. In contrast to the other types which occur in all relativized positions, this variant only occurs, of course, when the relativized NP is the object of a preposition. Unlike Greek, this is not limited to the accusative case, but like the resumptive alternative above, it is invariably introduced by *que* :

- (74) O André, que eu gosto , é mais bonito
 André, that I am fond, is more handsome³⁸

Tarallo argues that two "systems" are in operation in BP:

1. The standard system which, for the most part, operates in the written language only, and where relatives are derived by wh-movement and are subject to pied-piping;
2. The non-standard system, where relatives are the result of a non-movement strategy and relativized PPs are either overtly represented or deleted.

Although Tarallo does not extensively discuss another relative clause alternative, his data show instances of preposition stranding similar to those in Greek. That is, he reports that for adverbial-like prepositions (e.g.

³⁸ This example, verified by my informant, does not come directly from Tarallo. It has been used here to show the distinction between the three relative clause types as clearly as possible.

abaixo = 'below'; *acima* = 'above') "stranding is grammatical, both in speech and in writing" (p. 87):

- (75) Então, eu estava com uma sacola de papelão, que tinha echarpe
 Well, I had a brown paper bag which had a scarf
 e luva dentro
 and glove inside (p. 248)

In another section, Tarallo does not limit instances of stranding to adverbials, but notes that it sometimes occurs with "stronger prepositions" (which he does not define), such as *a respeito* = 'about'. Thus, we seem to have a similar pattern as was observed in Greek.³⁹

Based on forty-five hours of tape-recorded interviews with forty informants from three social classes in São Paulo, Brazil, Tarallo reports that PP-chopping (null-prep) alternates with the resumptive pronoun variant as the only viable options in the spoken language. Among the upper classes, the gap leaving variant is limited to use in subject and direct object relativizations; for constructions where the object of the preposition is relativized, pied-piping is almost never used, resumptives are considered "stigmatized", and the chopping (null-prep) alternative is almost exclusively used. Among the lower classes, resumptives are commonly used, along with chopping; pied-piping is non-existent.

³⁹ I am assuming that neither Tarallo nor Ingria is referring to intransitive prepositions of the type:

Let's play around
We must do without

which Nishigauchi and Roeper (1987) argue must be distinguished from transitive adverbial prepositions, like:

**Put it under*

Table 4.1 is a revised version of Table 6.10, p. 174, from Tarallo, which shows the three options (Gap-leaving = GL; Resumptive = R; PP-chopping = CH) across relativized positions; this generalizes across social classes. Note that for IO (indirect object), OBL (oblique) and G (genitive) positions, the gap-leaving alternative is pied-piping:

TABLE 4.1 Three relativization strategies in Brazilian Portuguese across syntactic positions

	<u>S</u>	<u>DO</u>	<u>IO</u>	<u>OBL</u>	<u>G</u>
<u>GL</u>	890 89.7%	374 97.4%	3 3.9%	17 7.4%	1 5.9%
<u>R</u>	102 10.3%	10 2.6%	16 21.1%	24 10.4%	9 52.9%
<u>CH</u>	N/A	N/A	57 75.0%	190 82.2%	7 41.2%

Notes:

1. Abbreviations: S=subject position; DO=direct object; IO=indirect object; OBL=oblique; G=genitive; GL=gap-leaving variant; R=resumptive variant; CH=PP-chopping variant (= null-prep).

From this table, it can be observed that for indirect object and oblique relatives, the preferred strategy is PP-chopping, while the resumptive pronoun alternative is slightly favored in genitives. Recall that in Greek an overt pronoun is likewise required in genitives, and null-prep is prohibited.

Just as Ingria posited a non-movement analysis for resumptives and PP-deletion in Greek, Tarallo similarly claims that related cases in BP are introduced by an invariant complementizer in a non-movement

construction, rather than by a moved relative pronoun. His arguments will be reviewed here.

THE STATUS OF *QUE* AS A COMPLEMENTIZER

Again, the most compelling argument for a non-movement derivation of *que* relatives is their insensitivity to island constraints. Tarallo reports a very high rate of acceptability for the following relatives, illustrating just such violations:

- (76) O homem que eu acredito no fato que Maria viu e, veio
 *The man that I believe the fact that Mary saw e, came
 me visitar
 me to visit.

- (77) O homem que eu sei quando Maria viu e, é meu primo
 *The man that I know when Mary saw e, is my cousin. (p. 17)⁴⁰

A second argument concerns questions. Such constructions are clearly the result of *wh*-movement in both Greek and BP. Both languages must exhibit a gap in the moved position and a *wh*-pronoun in COMP. Significantly, the two languages require the pied-piping form when a question involves the object of a preposition. BP, like Greek, shows no evidence of PP-chopping (null-prep) in direct or indirect questions. Contrast the examples in (78) with those in (79) and (80), all from Tarallo:

- (78) a. a môca com quem eu falei.
 the girl with whom I spoke.
 b. a môca que eu falei com ela.
 the girl that I spoke with her.

⁴⁰ Tarallo doesn't give us examples of comparable gap-leaving constructions showing that complex NPs and WH clauses are islands in BP, but he clearly implies that they are.

- c. a môca que eu falei
the girl that I spoke (p. 20)

(79) a.* Quem você falou
Who did you speak?

b. Com quem você....falou
With whom did you speak

(80) a.* Eu perguntei quem você falou
I asked who did you speak [sic]⁴¹

b. Eu perguntei com quem você falou
I asked with whom you spoke (p. 44)

Interestingly, there were no cases attested in Tarallo's data where a resumptive pronoun appeared when there was a *wh*-pronoun rather than *que* in COMP. This was true for both relatives and questions.⁴²

Like the Greek complementizer *pu*, *que* is not only the major complementizer in relative clauses but also introduces complement clauses as in: ⁴³

(81) a. Eu acho que...
I think that...

b. Ele diz que....
He says that... (p. 89)

⁴¹ I presume Tarallo meant 'I asked who you spoke'

⁴² Resumptive pronouns are commonly regarded as not involving movement. Sells (1981) suggests that resumptives may be the result of movement constructions, but the evidence is not strong in favor of that hypothesis. Anthony Kroch (personal communication) argues that cases where resumptives appear to be associated with moved phrases are not resumptives at all, but cases of clitic-doubling. He further argues that true resumptives never appear in questions; this is so in Tarallo's data (as well as Ingria's for Greek).

⁴³ Tarallo does not give the complete examples, but I presume that the complementizer is followed by a sentential complement.

However, unlike English that-relatives, the BP data show a few cases of doubly-filled COMPs with locatives:

- (82) A casa onde que eu moro...
 The house where that I live... (p. 117)

Tarallo makes the familiar assumption that COMP has two positions, a +wh-COMP position filled with the (moved) relative pronoun (in this case, *onde*), and a -wh-COMP position filled with the *que* complementizer which has been base-generated. BP, unlike English, may not have an empty COMP in subordinate clauses; thus, in non-movement constructions (i.e. where the COMP position is not filled by a relative or interrogative pronoun), *que* will invariably appear.

Finally, pro-drop appears in main clauses in BP as well as in relatives (see discussion and examples below). Since this phenomenon clearly operates in non-movement constructions, Tarallo claims that there is no reason to believe that a set of different rules or principles should account for its appearance in relative clauses.

In fact, Tarallo forcefully argues for a close relationship between historical developments in BP pronominalization in main clauses and subsequent changes in relativization. In fact, his data provide interesting diachronic evidence (see his Chapter VI) showing that changes in the pronominal system have been directly reflected in the relative clause construction.

During the mid 19th c., subject-drop in main clauses, which had predominated in the language, began to disappear as did pronoun retention for direct objects in main clauses. Thus, constructions like the following began to appear:

- (83) O café de lá tão ruim. Eu não consegui tomar ei.
 The coffee there is so bad. I could not drink.

In particular, clitic object pronouns generally disappeared, replaced by zero anaphora. Before the death of clitics and the omission of object pronouns in main clauses, pied-piping was the generally favored variant in clauses where the object of the preposition was relativized. Among the lower classes, piping alternated with resumptives pronouns in these constructions. Significantly, as soon as object-drop appeared in main clauses, PP-chopping (null-prep) surfaced in relatives, becoming a strong alternative to pied-piping. In contrast, Tarallo argues that resumptive pronouns in relatives have always existed in the language as a low-level strategy required for "short-term memory processing" and are not related to diachronic changes in the general pronominal system.

THE RULE OF OBJECT-DROP

According to Tarallo, then, object-drop in main clauses is prevalent in Brazilian Portuguese today⁴⁴ along with the extensive use of subject pronouns. BP also clearly permits the antecedent of the empty object pronoun in main clauses to be outside the sentence (as in (83) above), as was also seen in Greek.

While object-drop occurs very freely in the language, there are some conditions which disfavor its operation in relative clauses:⁴⁵

⁴⁴ Unlike the situation in Greek (see footnote 33), Tarallo's claims regarding object-drop in main clauses were verified by my four BP informants, who allow null objects in both declaratives and questions as long as the antecedent is clear.

⁴⁵ These conditions do not appear to be absolute constraints on object-drop in relative clauses, but the data show a lower percentage of rule application when they are in evidence.

1. The most significant factor in Tarallo's data was the feature [+human] on the head of the relative. This constraint loosely corresponds to the third-person condition on object-drop in Greek; that is, object-drop may not apply to the first and second person pronouns which are, significantly, always [+human]. The features [+singular] and [-definite] also showed some negative effects, but they were very weak.
2. Structures which were "more loosely woven into discourse" (p. 222), most significantly non-restrictives, disfavored object drop and generally appeared with resumptive pronouns.
3. Like Greek, the longer the distance between the head and the pronoun position, the less likely it was that object-drop took place.
4. Object-drop was less likely to operate in cases of "right embedding" (i.e. where the relative followed the entire main clause, rather than the head alone).

In general, then, the restrictions on the application of object-drop appear to be more closely tied to ease/difficulty of processing than to absolute constraints. When other types of constraints apply, they are less absolute than they appear to be in Greek, as well as fewer in number. For instance, recall that pro-deletion in Greek was restricted to the accusative case. The rule of pro-drop in BP, however, applies in all syntactic positions, although most often with direct and indirect objects. The following is an example of object-drop in the genitive case in BP:

- (84) Uma mulher que nós batemos na porta
 A woman that we knocked at the door
 ...'A woman whose door we knocked at.' (p. 4)

In addition, Tarallo's data were almost exclusively limited to relative clauses; therefore, the extent to which these conditions operate in main clauses is not clear.

Tarallo, like Ingria, hypothesizes a two-step process when the object is governed by a preposition. First, the object is dropped ("chopped"), and then the preceding preposition is deleted in order to avoid preposition stranding, which is generally prohibited in BP. These two rules in BP result in a (null-prep) construction which alternates with resumptive PPs and is subject to some constraints which will now be discussed.

THE PP-CHOPPING VARIANT

The conditions favoring object-drop - notably NP heads which are [-human], center-embedded and restricted relatives - obviously influence the application of PP-chopping. Tarallo's data also show that the rule is applied among a "closed set" of prepositions. Out of 254 cases, only the following prepositions were dropped:

a/para ='to', 'for'; *com* ='with'; *de* ='of'; *de/sobre* ='about'
em ='at', 'in', 'on'; *por* ='for', 'by'; *sobre* ='on'

It would appear, then, that "stronger" prepositions with more semantic content (e.g. *dentro* 'inside', as seen in (75)) will not easily delete. Tarallo suggests that the rule is generally restricted by recoverability considerations. Thus, if a particular verb subcategorizes for a single PP, PP-chopping will easily take place. If, on the other hand, a verb subcategorizes for more than one preposition, as:

falar a /para ('to speak to') vs. *falar de /sobre* ('to speak about')

it will more likely allow PP-chopping with the former, reflecting what Maling termed the "basic reading" in the Greek examples. Tarallo suggests that there are lexical restrictions such that certain PP arguments

are more easily subject to PP-chopping, and accurate retrieval, than others.⁴⁶

In addition, interpretation can be aided on the basis of the +/-human feature on the NP head according to Tarallo. Thus, he notes that the following omitted prepositions can be determined even though the verb *trabalhar* subcategorizes for several prepositions (as shown in Tarallo's parenthesis):

- (85) *está morando com um outro rapaz que ele trabalha*
he is living with another guy that he works.

(com que/quem/o qual; *para/*em)

(with whom for / in)

'He is living with another guy that he works with.'

- (86)...*porque a casa que eu trabalho, eu moro..*
because the house that I work, I live

(em que/na qual; *com/*para).

(in which with/for)

...'because the house that I work in, I live in'

(p. 230)

Tarallo is simply showing here that the meaning of the preposition can be contextually retrieved. In example (85), however, there still appears to be an ambiguity between *trabalha com* ('work with') and *trabalha para* ('work for').⁴⁷ Similarly in:

⁴⁶ Tarallo reports on a test given to Brazilian Portuguese native speakers in which they had to interpret verbs which permitted more than one PP-complement. (Presumably, the test sentences were presented with omitted PPs.) For verbs like *falar*, subjects most often assumed the preposition to be *para* ('to').

⁴⁷ The only way the ambiguity could be resolved is if one assumes that "he" wouldn't be living with his boss! The point, however, is that the +/-human feature, that Tarallo suggests is sufficient for disambiguation, does not work in the example he presents. Note, also, that example (78c) shows that PP-chopping does occur with +human NP heads, but it does so less frequently than with the -human feature.

(87)...porque tive [?], teve um que a professora falou,
 'because there was, there was one that the teacher said/spoke,

onde já se viu falar que um aluno não é homem
 how come you say that a student is not a man. (p. 214)

Here, it is not clear if the teacher spoke *to* or *about* the person.

Thus, while Tarallo notes that 76% of the PP-chopping cases in his corpus "cannot result in ambiguity on the surface" (p. 232), and many of the remainder are recovered from cues in the discourse, there are still others that are not recoverable. This issue will be taken up shortly.

4.2.4 The analysis of null-prep

Having examined these studies of "null-prep" in Greek and Brazilian Portuguese, I will now review the analysis posited by Tarallo and Ingria. Another analysis will then be proposed.

TARALLO'S AND INGRIA'S ANALYSIS

Ingria and Tarallo posit similar analyses for "null-prep" in the respective languages they investigated. Using a familiar example from Tarallo (p. 20) for the sake of clarity, my interpretation of this analysis is the following derivation:

- (88) a. A môca [que [eu falei [com ela]
 The girl [that [I spoke [with her]
 s[comp s[pp[P-adv NP]]] -->
- b. A môca [que [eu falei [com]]
 pp[P-adv e]]] -->
- condition: (c) will also apply
- c. A môca [que [eu falei]]
 pp[e e]]]⁴⁸

The assumption, then, is that prepositional phrase deletion begins with a resumptive pronoun (88a) in the deep structure. A transformation operates which permits the object governed by the preposition to delete as in (88b), if and only if the preposition itself may delete as in (88c) to avoid stranding of a non-adverbial preposition. The final operation deletes the non-adverbial P as well.

Recall that both Ingria (I) and Tarallo (T) posit two rules for this process (see sections 4.2.2 and 4.2.3):

1. I - "Accusative object-drop" T - "Object-chopping"
2. I - "Preposition-deletion" T - "PP-chopping"

They suggest that the first rule operates in main clauses and accounts for null objects. It is this object-drop/chop rule which is then extended to prepositional-objects (marked *accusative* in Greek null-prep dialects) which allows the transformation in (88b) to take place under the given condition, which is pragmatically restricted to different degrees in the two languages.

⁴⁸ The exact nature of the empty prepositional phrase has not been clarified (i.e. its internal structure).

It has been noted, however, that "object-drop" in main clauses is not a necessary condition for null-prep to occur in some dialects and languages (e.g. Venezuelan Spanish, some Greek dialects). Therefore, the operation of a general object-drop rule in (88b) as part of a transformational analysis of null-prep does not appear to be warranted. A rule deleting PP would be needed instead, avoiding the awkward dependency between the two rules of a two-step derivation as in (88).

A DIFFERENT ANALYSIS

A somewhat different analysis of null-prep is suggested by the following generalizations about the construction:

1. Null-prep is optional and alternates with pronoun retention in prepositional languages.

Whether this generalization holds for postpositional languages will depend on whether they are argued to have (null) resumptive pronouns, a complex issue which will be touched on presently. Again, English deviates from other prepositional languages since pronoun retention in English is very rare.

2. Null-prep occurs only in non wh-movement constructions with an invariant complementizer.

The arguments for a non-movement analysis presented by Ingria and Tarallo are compelling, the strongest being insensitivity to subjacency constraints in the Greek and Brazilian Portuguese constructions presented. In addition is the fact that null-prep is unattested in questions.

However, it is important to acknowledge that this hypothesis has not yet been supported by examining these languages for crossover effects and

parasitic gaps, which are now standardly utilized as tests for wh-movement, along with subjacency.

Sells (1981), Huang (1984), and Saito (1985), among others, argue that crossover effects provide evidence of movement. A *trace* of wh-movement is construed as a variable represented by x in:

(89) Who₁ does the boy that *she*₂ sees like x ₁

(90) Who₁ does *her*₂ father see x ₁

The variable is bound to the wh-operator which has crossed the pronoun *she* / *her*. This variable cannot be coindexed with *she* / *her* as well. However, when a non-variable is involved (i.e. no movement has taken place), this co-indexing is acceptable:

(91) The boy that *she*₁ sees likes *Mary*₁

(92) *Her*₁ father sees *Mary*₁

Here the pronoun *she* / *her* can be coreferential with *Mary*. This coreferentiality can be utilized as a criterion for non-movement constructions.

Thus, in languages where relative clauses are not derived by wh-movement, we would expect 'crossed over' interpretations like that in (93) to be acceptable:

(93) There is the person₁ who₁ *her*₁ father said he saw x ₁

In an initial effort to utilize the weak crossover criterion, I tested a graduate student in linguistics who is a Greek native speaker. She gave the following coreference judgements for the resumptive variant with *pu* :

- (94) Sinandisa kapion₁ pu₁ i adelfi tou₁ den seri
 I-met someone₁ that₁ the sister his₁ not like
 na tragondai gia afton₁
 to sing for him₁
 'I met someone₁ who₁ his₁ sister doesn't like to sing for.'

and for the pied-piping variant with *o opios* :

- (95) a. I sinandisa kapion₁ [giu too opion]₁ i adelfi tou₂ tragondai [t]₁
 b. *I sinandisa kapion₁ [giu too opion]₁ i adelfi tou₁ tragondai [t]₁

That is, there is a weak crossover violation in (95) but not in (94). This supports the claim that *pu* is a complementizer in a non-movement construction; the resumptive [*afton*] does not exhibit the behavior of a true variable as it is coindexed with the pronoun [*tou*] which intervenes between it and the head of the relative. In contrast, the empty category [t] in sentence (95) behaves, predictably, as a variable coindexed to the pied-piped wh-operator, and hence shows a disjoint reference relation to the pronoun [*tou*].⁴⁹

Further tests are needed, of course, to confirm these judgements.⁵⁰ Also valuable could be data on parasitic gaps which are standardly held to be characteristic of movement constructions only (see Sells, 1981; Saito, 1985; Hasagawa, 1985).

⁴⁹ Note that (94) given only with pronoun retention since this particular subject could not provide a judgement when it was presented in its null-prep form. It supports, however, the status of *pu* as a complementizer.

⁵⁰ However, it should be stated that this informant found the exercise extremely difficult. Thus, the possibility of replicating and expanding such tests may not be fruitful, except among a population of Greek and Brazilian Portuguese linguists.

At this juncture, then, the arguments presented here must suffice as evidence for a non-movement analysis of the relative clauses which exhibit null-prep in Greek and BP.

A non-movement analysis may also suggest why null-prep exists in colloquial or spoken dialects rather than in standard written languages. It is often observed that movement constructions are more prevalent in more formal language modes in prepositional languages. Furthermore, resumptive pronouns, most often associated with non-movement constructions, always alternate with null-prep in the vernacular dialects; like null-prep, resumptives rarely appear in the written form of standard dialects.⁵¹

The non-movement origin of null-prep is also compatible with some facts about postpositional languages. It was seen in section 4.1.1, in sentences (1) and (2), that null-prep is exhibited in Japanese and Korean relative clauses. These constructions are COMP-final. It is generally held (Bresnan, 1970) that wh-movement does not occur to the right, and that relative clauses in these languages are not movement constructions. (I ignore here the possibility of movement at LF.) Assuming this is so, i.e. that such constructions are not the result of a variable bound to a wh-operator in COMP, then it appears that the non-movement hypothesis can be generalized to cover postpositional languages. This point will be further discussed below.

In the case of English, the omission of prepositions occurs in movement as well as non-movement constructions (in questions and

⁵¹ This generalization does not hold for postpositional languages where overt resumptives are not exhibited and where null-prep occurs in the standard as well as the vernacular dialects.

movement relatives, as well as main clauses) suggesting that a different process is in operation.

3. Null-prep tends to occur primarily with weak prepositions which do not allow stranding and which are not as phonologically or semantically salient as strong prepositions.⁵²

Significantly, both Greek and Brazilian Portuguese allow stranding with adverbial prepositions and, occasionally, with strong non-adverbial prepositions. In Greek and BP, weak prepositions can never precede empty objects so the entire prepositional phrase must either be lexically realized or null, as both Tarallo and Ingria show. As reported by Zribi-Hertz (1984), the option of non-movement stranding with particular prepositions (polysyllabic)⁵³ also occurs in some dialects of French, which, for the most part, do not allow null-prep. Importantly, other French dialects like Québécois, as discussed by Vinet (1979), also allow "non-movement stranding" (her analysis) with strong prepositions; however, stranding in these dialects may alternate with "null-prep" in cases of weak prepositions

⁵² The distinction between strong and weak prepositions is a rather loose one, and the line demarcating the two appears to be language-specific. In English, for example (and perhaps for some other stranding languages as well), prepositions are generally strong, act as proper governors (to satisfy the ECP), and can even be conjoined separately from their objects, as in:

- i. He ran to and from the house.

Similarly, English allows right node-raising constructions like:

- ii. John has spoken to and Tom has spoken about Mary.

In null-prep languages, it is suggested that non-adverbial prepositions are relatively weak and are not proper governors; thus, constructions such as i. and ii. would not be expected to appear. (The phonological and syntactic nature of prepositions in relative clauses will be discussed further below.)

⁵³ Zribi-Hertz terms them "orphan prepositions" to distinguish the construction from preposition stranding which involves movement.

(Bouchard, 1981, 1984) which are part of Vinet's interpretation of a "verbal complex", e.g. *pense à / cherche à / batir de* , as previously shown in section 4.1.2. Vinet's examples of weak prepositions all appear to be monosyllabic, suggesting that they are part of the same set that in the Zribi-Hertz examples may not strand, but, in contrast, must have overt objects. Bouchard (as shown in section 4.1) suggests that the relevant dimension is semantic, rather than phonological, weakness - that is, the preposition may be easily recovered from the context by its clear association with the verb.

Weak prepositions generally seem to have dual properties which make them especially amenable to null-prep:

a) Phonologically, they are unstressed. This would allow them to cliticize⁵⁴ to a following object, whether it is lexical (thus, overtly cliticizing to it) or not (thus, cliticizing and, as part of the same phonological unit, becoming null as well)⁵⁵.

b) Syntactically, they cannot precede an NP-trace or a WH-trace. It is generally acknowledged that weak prepositions are, in fact, clitics. Because they are bound morphemes, it would follow that they would not be proper governors; therefore, such prepositions would not be likely to

⁵⁴ Anthony Kroch (personal communication) points out that "cliticization" is too strong a term, since it could not account for the cases of polysyllabic or strong prepositions which may also produce null-prep in Greek and BP. I assume that even in these cases, there is some kind of fusion of an overt preposition onto a null root, thereby becoming null itself. I will loosely use the term "cliticization" for all such cases. This follows Rizzi(1986:519 fn.15) who suggests the "cliticization" of prepositions to their complements in French. (See related discussion to follow.)

⁵⁵ I will not discuss here the phonological mechanisms underlying this concept of "becoming null"; it may be that each weak preposition has a null alternate in the lexicon, and that a phonological filter excludes a lexical clitic on a null pronoun and vice versa.

precede a *trace*, for that would result in a violation of the ECP.⁵⁶ Weak prepositions may, however, precede and license *pro*, which is not subject to the ECP and which will be discussed shortly. It is in such cases that cliticization takes place, giving rise to null-prep. (Note that the only other alternatives for weak prepositions would be piping in movement constructions and pronoun retention in non-movement constructions.)

4. Null-prep is subject to pragmatic and/or subcategorization restrictions among prepositional languages. This suggests a procedure similar to Rizzi's (1986) parameterized "recovery procedure" where a *pro*, when not arbitrary, may refer to an element in the discourse. Since verbs subcategorize for a single (specified) PP complement or for multiple PP complements, there would be a parameterized range where languages may allow these prepositional complements to be empty; that is, a parameter specifying that a verb may/may not omit its PP complement under particular conditions (e.g. a condition operating in some null-prep languages may specify that null-prep is permitted only if there is a particular PP associated with a particular verb; on the other hand, a less-restrictive null-prep language may allow the PP to be omitted if it can be identified in the pragmatics).

On the basis of these generalizations, an analysis can now be proposed which can account for the null-prep facts in both Greek and Brazilian Portuguese, as well as the other null-prep languages discussed in section 4.1.⁵⁷

⁵⁶ The empty category principle (ECP) states that an empty category must be properly governed, where proper government is government by a lexical governor or a local antecedent.

⁵⁷ Omitted from the generalizations is the relationship between null-prep in relatives, and null objects in main clauses. This relationship is not a clear correlational one; for

example, in some dialects of Greek, as already noted, null-prep is prevalent in relatives but null objects are not permitted in main clauses. This also appears to be the case for Venezuelan Spanish. Flores (1987) claims that Venezuelan Spanish differs from Brazilian Portuguese in that the former has null subjects but no null objects in main clauses, while the latter exhibits exactly the opposite pattern. Both, however, allow null-prep as seen in the following example of VS from Flores (1987:2, 12):

- i. Puse mucho énfasis en las secciones que
(I) put a lot of emphasis on the sections (in) which

se discuten los aspectos gramaticales...
are discussed the aspects grammatical

Flores suggests, following Tarallo, that "null-prep" in BP is closely related to the pronominalization system and represents a "deletion process" unrelated to movement constructions. However, he argues that in VS and, by implication, other dialects or languages which permit "null-prep" in relatives but do not allow matrix objects to be omitted, a different analysis is warranted; he suggests that there is a relationship between "null-prep" and resumptive pronouns, arguing that the latter are related to left-dislocation, a movement construction:

- ii. Mi cuarto, yo tengo un desorden ahí / en él.
My room I have a mess there / in it
- iii. Juan, los profesores no quieren hablar con él.
John, the professors don't want to talk with him. (p. 92)

Flores further argues that in constructions where the PP is omitted, the preposition drops if it is "weak". The suggestion is that "null-prep" is related to constructions like ii. and iii. above, implying that all such constructions are +movement.

However, Flores also states that his analysis:

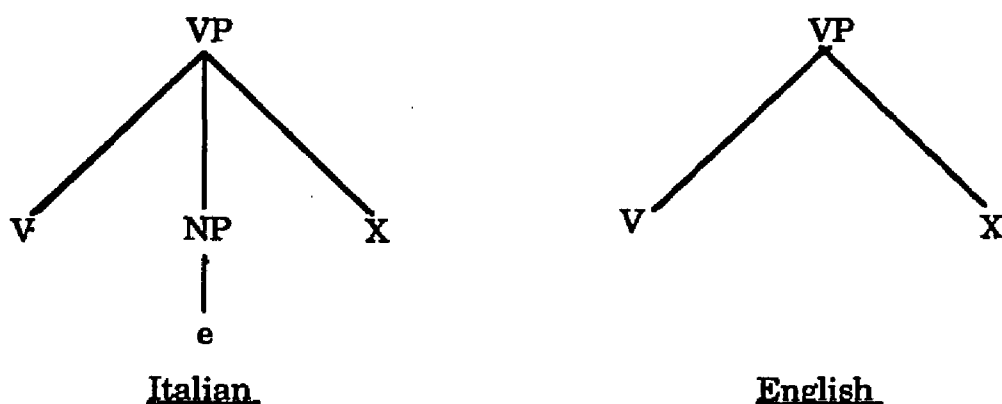
seems to agree with Bouchard's (1982) conclusions regarding vernacular Montreal French. He claims that the gap position is either filled by an anaphoric pronoun, coreferent with the NP head, or is left unfilled if the preposition is weak (in which case the preposition is dropped)... (Flores, 1987:94)

The problem is that Bouchard argues for omitted PPs in relatives as non-movement constructions (1981, 1984), so it is not clear at all which side Flores is on. Flores states that the underlying systems for resumptive pronouns differ in VS and BP. How these differences affect the "null-prep" construction is still an open question and one that is not clarified.

It is possible that two analyses for null-prep are warranted: one, for languages which, like BP, allow null objects in main clauses; the second, in languages, like VS, which do not. Further, there are languages like Greek, which have one pattern in some dialects, and the second in others.

In the analysis here, I do not suggest incorporating the licensing and governing principles for null-objects in main clauses and relatives into a single parameter, though I regard this as an important topic for further investigation.

First, it is important to establish that the null prepositional object is, indeed, a syntactically present though phonologically empty category (rather than entirely absent from the deep structure). Rizzi (1986) argues that a superficially similar null direct object can be shown to play a structural role in some languages but not in others. Rizzi posits a base-generated empty object (with *arb* reference) in Italian, but not in English:



This is illustrated in sentences like the following in the two languages respectively:

- (96) a. Questo conduce (la gente) alla seguente conclusione.
 b. This leads (people) to the following conclusion.

Rizzi uses three tests to establish this difference, two of which will be illustrated here.⁵⁸ First, he shows that "in object control structures the object NP must be structurally represented" (1986:503). Thus in Italian, (97b) is permitted since there is an underlying empty object as controller for PRO; by contrast, the lack of a structural object to control PRO in the following English example renders (98b) ungrammatical:

⁵⁸ The third test involves the local binding of anaphors. This has been omitted here since it could not be used to test Greek, which permits long-distance binding of anaphors.

- (97) a. Questo conduce la gente a [PRO concludere quanto segue].
 b. Questo conduce _____ a [PRO concludere quanto segue].
- (98) a. This leads people [PRO to conclude what follows].
 b. *This leads _____ [PRO to conclude what follows].

This criterion can be used to test whether the empty objects in null-prep constructions in Greek (99) and Brazilian Portuguese (100) are structurally represented: ⁵⁹

- (99) Aftos ine o andras₁ pou zitisa₂ [PRO₁ na feri ti bira]
 That is the man that I-asked (to him) to bring[+m] the beer
- (100) Esta é a mulher₁ que ele₂ pediu [PRO₁ para trazer a cerveja]
 That is the woman that he asked (to her) to bring[+f] the beer

These examples show that, as in Italian,⁶⁰ the understood objects are structurally represented; that is, an understood object can be the controller of PRO. Note that the PRO must pick up number and gender features from its antecedent, since there is person/gender agreement between PRO and the infinitival verb in the controlled clause.

In another test, Rizzi shows that an adjunct small clause can modify an understood object in Italian:

- (101) ...quel famoso pittore ritrae _____ vestiti di bianco
 '...that famous painter portrays _____ dressed([+pl]) in white.'

⁵⁹ Examples (99) (100) (102) (103) were translated from English into Greek and BP by four native speakers of Greek and four native speakers of BP, respectively. There was no disagreement within the two groups concerning interpretation of the sentences in their native languages.

⁶⁰ While Rizzi's tests were for a null=arb object in Italian, I am assuming that they are equally applicable to empty objects which have antecedents, as in relative clauses.

Here there is a mismatch in number between the adjective *dressed* and the subject *painter*, thus showing that the small clause modifies, instead, the understood object (which in this case would be [+plural]). A somewhat similar situation is found in the following Greek (102) and BP (103) examples:

- (102) Afta ine ta pedia₁ pou pezi₂,
 'These are the children that s/he-plays (with them)
 [dimena sta lefka]₁.
 dressed[+pl] in white.'

- (103) Esta é a mulher₁ que ele₂ falou [vestida de branco]₁
 That is the woman that he talked (to her) dressed[+f] in white

In (102), the small clause must modify the null object, whose antecedent is *children* with the feature [+plural]; it cannot modify the subject of the relative which is [+singular]. Similarly in (103), the small clause modifies the null object, with antecedent *woman*, as shown by the feature [+feminine], which contrasts with the [+masculine] subject of the relative.

Such examples can be argued to show that the null object in null-prep constructions is structurally realized, although phonologically empty. It must be present in LF for interpretation of PRO and predication. Thus, there is no support for the hypothesis that the null-prep construction involves a missing NP at the level of deep structure, or deletion of a base-generated NP in the syntax (though possibly in the phonological component). In place of Ingria's and Tarallo's two deletion rules (object deletion and preposition deletion), I therefore propose that the empty prepositional phrase is base-generated, that it contains both a null preposition and a *pro* object.

The rationale for positing an internal structure for the null-PP (i.e. $pp[e\ np[e]]$ rather than just $pp[e]$) is based on evidence that the recoverability for each of the empty categories is separate and distinct. This will be evident in the discussion to follow and in section 4.4. Note that if the *pro* is preceded by a strong preposition which cannot be null:

$pp[P\ e]$

the result will be the kind of adverbial preposition stranding that was seen in both Greek and BP, as well as the examples of "intransitive" prepositions shown in the dialects of French discussed earlier.

It is important to consider the evidence for regarding the null object within the empty PP to be *pro*. This does not follow just from the fact that it is structurally realized though phonologically empty, and is not created by movement. Rizzi (1988) argues that an empty object in European Portuguese is not a *pro*, but a variable bound by a null operator in A' position. Support for this analysis comes from the fact that null objects can not occur in EP questions where the COMP position is already filled by a *wh*-phrase. Examples from Raposo (1986) show that EP occasionally allows null objects when there is a clear referent in the discourse, but that this is prohibited in questions:

- (104) a. [OP [a Joana viu *ec* na televisão ontem a noite]]
 'Joana saw (him) on TV last night'

- b. *[Quando OP [é que o João vai oferecer *ec* a Maria t]]?
 'When is João going to offer (it) to Maria?' (Rizzi, 1986:513)

Rizzi argues that since null operators move into COMP, the position can't be filled by a *wh*-phrase and a null operator at the same time. Thus, the ill-formedness of (104b) is explained.

Null objects in Japanese and Chinese are argued to be cases of the latter. Thus, while there is a clear distinction between Rizzi's concept of *pro* (no movement at SS or LF) and the operator-variable hypotheses (no movement at SS, but movement at LF), both analyses agree that the empty object is base-generated and that wh-movement is not involved before LF.

Cole (1987) synthesizes the contrasting arguments of Rizzi, and Huang et al. He argues that there are three groups of languages such that, in some (e.g. Italian and Quechua) null objects = *pro*; in others, (e.g. Chinese and Japanese) null objects = null variables; in still others (e.g. Korean and Thai), null objects = either *pro* or null variables.

I will not pursue these contrasts here. Even if null-prep languages evidence LF topic-movement such as Huang and others argue for Chinese and Japanese, it seems clear that the empty object of the preposition is not the *trace* of movement in surface structure.

I will continue to refer to the null object as *pro* to contrast it with the *trace* of syntactic movement. At this point, however, the question must be addressed of why null-prep occurs only with *pro* not *trace* as its object. The licensing of *pro* vs. *trace* by a preposition must be examined, and so must the identification of these empty categories.

THE OBJECT OF P AS *PRO* : licensing and identification considerations

I will not consider here the occurrence of *pro* in subject position, but only object *pro*. The characterization of *pro* licensed by V has been examined to a greater extent than that of *pro* licensed by P. In postpositional languages such as Japanese and Korean, *pro* is freely licensed by V. That is, null objects (as well as null subjects) frequently

occur in these languages. This is the case with Chinese, which, although prepositional, shares many characteristics with postpositional languages. Rizzi (1986) notes that Italian exhibits *pro* objects licensed by V,⁶² but not by P. But this need not be true of all languages. Rizzi claims that *pro* must be governed and case marked by X_y^0 . That is, he argues that "*pro* is licensed by a governing head of type y where the class of licensing heads can vary from language to language" (1986:519). Thus, differing licensing conditions will determine whether and where *pro* is permitted in a given language.

Reviewing the situation in standard French, Rizzi suggests that *pro* can sometimes occur as a prepositional object, resulting in "orphaned prepositions", a special case of "stranding". In Québécois, as well, *pro* sometimes occurs as the object of a preposition, resulting in non-movement stranding. However, the stranding option appears to be quite rare, apparently requiring a strong preposition. Recall the cases in Greek and BP where adverbial prepositions, alone, could strand. Also, Rizzi reports (from Zribi-Hertz, 1984) that *pro* in French is permitted only with polysyllabic (phonologically strong) prepositions. It seems, then, that most prepositions are weak, too weak to license a *pro* object though they can take a lexical pronoun as object (= pronoun retention, when it occurs in relative clauses).

⁶² In seeking to determine what allows verbs to govern empty objects (in Italian, for instance, but not English), Rizzi suggests that the presence of object clitics in a language is a good "clue". In fact, following Sportiche (1983), Rizzi suggests that *pro* is the null form of clitics. This would be supported by Tarallo's diachronic analysis which showed that BP began to exhibit null objects and null-prep just at the time that overt object clitics disappeared.

However, this may not be the right way to look at the matter, especially as it offers no explanation for the occurrence of null-prep in alternation with pronoun retention. What I propose instead is that a weak preposition can license *pro*, but because it is weak it must cliticize to its object and hence must itself be null if the object is *pro*. Thus the weakness of these prepositions does not concern syntactic licensing but concerns only phonology.

This analysis is compatible with the fact that every language with null-prep also has pronoun retention. We assume that lexical objects are less marked than empty objects; and of course a P that cliticizes to a lexical object will be lexical, not null. The fact that not every language with null-prep also has stranding must be accounted for by assuming that most prepositions in most languages are phonologically weak and must cliticize to their objects. The same would be true of postpositions in languages like Japanese and Korean.

The recoverability of the empty preposition and its object *pro* is the final point to consider here. As mentioned earlier, an investigation of this issue clearly indicates that in a null-prep construction, the null preposition and its null object NP are identified by different means. Thus, the null prepositional phrase must be considered to have internal structure:

$$pp[\text{ }_p[\text{ }_e [\text{ }_{np}[\text{ }_e]]]]$$

Assuming a non-movement analysis, the empty NP will be identified by coindexation with the head noun.⁶³ However, the preposition is recovered

⁶³ There are long-standing questions about the relation between a relative clause and its head. It is often assumed that the relative clause modifies not NP but N', yet it is apparently capable of identifying a missing NP in the relative. I will not attempt to resolve these issues here.

by different means and sometimes not recovered at all. It has been shown that in BP the content of the unrealized preposition ($_p[e]$) is not always unambiguously identified by any binding relationship within the sentence. The null preposition, it was shown, may be identified by a cue in the discourse, or by subcategorization preferences for the verb, and not formally determined by sentence grammar.

Thus, there has been shown to be a "range" of recoverability conditions among the languages which exhibit null-prep. In languages like Greek, null-prep is permitted in cases of strict verb subcategorization (i.e. where the preposition can unambiguously be recovered because the verb is subcategorized for that preposition only) or where there is a "basic reading" of verb + preposition (i.e. where the preposition is semantically 'close' to the verb). On the other hand, a language like BP allows greater ambiguity, as seen before in the familiar relative construction:

- (106) a môca que eu falei
 the girl that I spoke (to? about? for?)

An account must be provided for these differences. For null objects, Rizzi suggests a recovery procedure such that "inherent 'content' must be fully recoverable from the overt linguistic context through some kind of binding relation" (p. 520) where the object *pro* has features that are specified by its licensing head. He further suggests a parameter such that the recovery of these features can be exploited to different degrees by various grammatical systems.

Rizzi presents an example from a French dialect with object pro-drop where all of the features are not fully recovered as seen in (108). From Rizzi (1986:543-4, fn. 42):

- (107) a. On est parti avec ma voiture.
 'We left with my car.'
- b. Je me suis retrouvé avec [ma voiture a réparer].
 'I ended up with my car to repair.'
- (108) a. On est parti avec *pro* .
 b. *Je me suis retrouvé avec [*pro* a réparer].

Rizzi suggests that the contrast in (110a) and (110b) is related to theta-marking; that is, in (110b), *pro* is not the complement of the preposition, where it would be theta-marked, but rather is the subject of the small clause. In (110a), where *pro* is theta-marked, the sentence is allowed. However, Rizzi, notes that in (110a) "the licensing preposition does not seem able to recover any feature representation of *pro* ".

Alternatively, Rizzi suggests:

...the P-licensed *pro* is restricted to nonhuman interpretation (that is, it alternates with the overt *lui/elle/eux*, restricted to human interpretation: [110a] can mean 'with my car', but not 'with my best friend'). This automatically excludes first and second person; hence, the feature of person (third) is determined by default. ...however, the determination of the feature of number remains mysterious.

Thus in (110a), the features of *pro*, licensed by P, are permitted in this dialect to be only partially identified.

We have seen in BP that null-prep can result in ambiguity. Thus, in Rizzi's framework:

some systems can choose not to use it [the recovery procedure] at all (e.g. cases of *arb* interpretation, as in Italian). Other systems can choose to exploit the recovery component only in part - that is, by recovering only one $\emptyset$ -feature specification of *pro*.. Other systems can choose to exploit the recovery component fully.

(p. 544)

A similar procedure would, in the relevant languages, be extended to the empty preposition in the null-PP. The null-prep option is restricted, to varying degrees, by the extent to which the features of the preposition may/may not be retrieved. In languages where null-prep only operates under lexical identity, this restriction operates in its strongest form; that is, the features of the null preposition must be directly recoverable from the prepositional head of the relative clause (or the preposition licensing the NP head, depending on the analysis - see section 4.3). In Greek, this restriction operates to a lesser degree; the semantic content of the preposition must be recovered from cues in the discourse or from restrictive subcategorization options on the verb. At the other end of the scale are Brazilian Portuguese and Quechua (see example (3) in section 4.1.1), both of which apparently exhibit omitted prepositions which are not recoverable.⁶⁴

This, then, accounts for examples like (108). However, such utterances (i.e. in null-prep languages which permit some cases to exploit the least restrictive recoverability option) have clear implications for the principle of Recoverability of Deletion, first proposed and formulated in Chomsky, 1964 (as well as Chomsky, 1965; and more recently by Chomsky and Lasnik, 1977; Chomsky, 1981), and still argued in Chomsky, 1986:70-71:

A principle of recoverability of deletion states that an element can be deleted only if it is fully determined by a structurally related phrase containing its lexical features or if it is a 'designated element,' where these notions have to be made precise...*to whom* could not be deleted in 'the man to whom you spoke,' because the preposition *to* is unrecoverable.

⁶⁴ I have not investigated the extent to which postpositions are/are not recoverable in languages like Japanese and Korean.

It is now apparent that this universal principle must be reformulated, in terminology as well as content, along the lines suggested by Rizzi, to accommodate the ambiguous cases of null-prep that have been presented in this chapter.

THE OBJECT OF P AS *TRACE* : licensing and identification considerations

We must now confront the question of why null-prep does not occur in movement constructions, i.e. with a *trace* object, as it does in non-movement constructions, i.e. with a *pro* object.

In languages which exhibit null object *traces*, it is most frequently the case that these are marked [accusative], and licensed by V. Far less frequently, object *traces* are oblique and licensed by P, the more marked option which results in preposition stranding. Such is the case of English, where all (argument) prepositions may strand, and in Dutch, where particular conditions trigger the stranding option (see Van Riemsdijk, 1978). Stranding is a relatively rare phenomenon in movement constructions, just as it is in non-movement constructions. And again there are, in principle, two possible ways of accounting for this fact. We might say that most prepositions are syntactically too weak to license a *trace*.⁶⁵ Or we might say that prepositions are often syntactically strong enough to license *trace* but are phonologically weak and so must cliticize to it, thereby becoming null; the result would be null-prep rather than

⁶⁵ As discussed in Chapter 2, Hornstein and Weinberg (1981) claim that prepositions never properly govern *trace*; recall that they propose a universal filter blocking oblique *traces*. Thus they argue for a "reanalysis" of V+P to account for preposition stranding in English and related languages.

preposition stranding. But in the case of movement constructions, null-prep does not occur, so this latter account, though appropriate for non-movement (*pro*) will not suffice for movement (*trace*).

Rather, we must assume that most prepositions do not syntactically license *trace*.⁶⁶ Apparently it is considerably "easier" for a preposition to license *pro* than to license *trace*.⁶⁷ (Perhaps this is because *trace* must satisfy the ECP, but I will not speculate further on the reason for this difference.) It is clear that a comparable difference exists for verbs licensing *pro* and licensing *trace*; indeed these are not usually assumed to be properties of individual lexical verbs but of the whole category.

Now consider those "stranding" prepositions which do license *trace*. - all prepositions in Swedish, all (argument) prepositions in English, prepositions in Dutch which are compatible with R-pronouns. Why do these prepositions not give rise to the null-prep phenomenon in movement relatives and questions? That is, why do these prepositions never cliticize to their *trace* objects? One possibility suggested briefly above is that bound morphemes are universally unable to properly govern. Another suggestion, discussed in more detail below (section 4.4) is that the scales of what we have been loosely calling 'syntactic strength' and 'phonological strength' are naturally correlated, at least approximately, so that it would

⁶⁶ There is an alternative, viz. that a preposition syntactically licenses *trace*, that it must cliticize to it, but that *trace* (unlike *pro*) can not host a clitic. Then the construction would be blocked by the conflict between obligatory and impossible cliticization. I will not pursue this possibility here.

⁶⁷ Note that the very same prepositions in Greek (or BP) which license *pro* in a null-prep construction in a non-movement relative, do not license *trace* in an otherwise identical movement relative.

be unusual for a preposition syntactically strong enough to properly govern a *trace* to be phonologically weak enough to cliticize to it.

Concerning recoverability, a *trace* is identified by the moved constituent with which it is indexed; in relatives, the empty NP is co-indexed with the head of the relative clause within the sentence. If the head is a nominal, as usually assumed, it would be expected to be able to identify an NP *trace* but not a PP *trace*, and also not an empty P preceding an NP *trace* as in (109), a hypothetical English example:

(109) *That's the _{NP}[man [that [she was whispering _{PP}[e e]

It was suggested in section 4.1.2 that some languages allow a PP to be modified by a relative clause. Then an empty PP in the relative could presumably be identified by the PP head, resulting in a null-prep type construction. Note, however, that this is not the case in English headed relatives (see discussion in the following section). The ungrammaticality of null-prep is not improved even when the head of the relative might be interpreted as a potentially identical PP, as in: ⁶⁸

(110) *The boys ran _{PP}[to the man [that [she was whispering _{PP}[e]

THE CLITICIZATION OF THE LICENSING P

It has been argued that the licensing of *pro* by a preposition is possible in some languages, and that if the preposition is 'weak', it will cliticize to its empty object and become null as well. But what does it mean

⁶⁸ This is in direct contrast to free (or headless) relatives in English as the following example illustrates. (See discussion in section 4.3):

i. I'll move to whatever town you move (to).

to say a preposition is 'weak'? And by what process does a cliticizing preposition become null? I suggest that weak prepositions are bound morphemes; that is, they are connected to *pro* by a morpheme boundary, rather than a word boundary.

As noted above, Rizzi (1986) reports that cases of non-movement stranding in French involve only polysyllabic prepositions (see, again, Zribi-Hertz, 1984), and proposes that this is because cliticization takes place with monosyllabic prepositions:

monosyllabic prepositions obligatorily cliticize to their complements in French...[C]ases of *p pro* with monosyllabic prepositions will be excluded by the lack of a phonetically realized target of the obligatory cliticization.

(p. 519, fn. 15)

To explain the option of null-prep, we have seen that it is necessary to take this a step further. It is being suggested here that in some languages, weak prepositions do cliticize to their *pro* objects because they themselves are null. The result is a completely empty PP, what we are calling null-prep. The phonological mechanisms involved in this process of cliticization-with-nullification are beyond the scope of this dissertation. But possibly the proper way to view it is that each weak preposition has in the lexicon a null counterpart, identical in all properties except its phonological content. This null preposition cannot occur anywhere other than with a *pro* in the null-prep construction, since it must cliticize to its object and an empty P can only cliticize to an empty object. Similarly, as we have

observed, a (weak) lexical P can only co-occur with a lexical object. Thus no process of 'nullification' of a lexical P need actually be postulated.⁶⁹

THE NULL-PREP PARAMETERS

The above discussion suggests that three parameters control the null-prep construction. In each case, the null-prep setting (NPS) is indicated:

1. +/- wh-movement in relative clauses, where - = NPS

Null-prep occurs exclusively in non-movement relatives.

2. +/- P licensing *pro*, where + = NPS

Null-prep occurs when a preposition syntactically licenses its empty object.

3. P has morpheme/word boundary, where morpheme boundary = NPS⁷⁰

Null-prep occurs when a (weak) preposition has a morpheme boundary and, therefore, cliticizes to *pro*.

In the final section of this chapter, these parameters will be examined in detail in order to determine markedness values for null-prep and related relative clause options across languages.

Summarizing the analysis up to this point, it has been argued that null-prep is the result of a base-generated empty NP (i.e. *pro*) licensed by a base-generated P which cliticizes to it. Three parameters are involved, which determine whether relative clauses are formed by movement,

⁶⁹ This approach may predict null-prep with NP-trace in 'pseudopassives' in languages with weak prepositions, but I will not pursue this here. It also predicts that if a strong preposition had a null counterpart, it could co-occur with a lexical NP. This appears to be what happens in English (see section 4.3).

⁷⁰ This may not be a parameter in the usual sense, but rather a general parameter universally characterizing prepositions as strong or weak; the parameter values would specify how stringent the definition of 'strong' or 'weak' would be.

whether prepositions license *pro*, and whether prepositions have a morpheme boundary. There must also be some kind of parameterization of the identification requirement on the null P. The empty NP within the $_{pp}[e]$ is identified by being bound to the relative clause head. However, the identity of the null preposition may be discourse-related or retrieved as the result of subcategorization. In both cases, the empty P may be ambiguous. Thus, null-prep has a range of retrieval options, and each language must select one.

This analysis of null-prep constructions appears to hold for the prepositional languages which exhibit null-prep and for the postpositional languages preliminarily investigated here as well. However, it does not hold for English, where a different process is in operation, as the following section will demonstrate.

4.3 The case of English

Examples of null-prep in English were shown in section 4.1.4 as (45-47). They are repeated here as (111-113):

- (111) a. He left on that [date/bus].
 b. *He left that [date/bus].
 c. On what/which [date/bus] did he leave
 d. What/Which [date/*bus] did he leave?
 e. That's the [date/ bus] on which he left.
 f. That's the [date/*bus] (that) he left.
- (112) a. She ate at [that time/the restaurant]⁷¹.
 b. *She ate [that time/the restaurant].

⁷¹ This refers to *at that time* meaning a *specific* temporal reading. There is another reading, of course, where the preposition is not required: *She ate that time*.

- c. At what [time/ restaurant] did she eat?
 - d. What [time/*restaurant] did she eat?
 - e. That's the [time/restaurant] at which she ate.
 - f. That's the [time/*restaurant] (that) she ate.
- (113)
- a. He graduated in [1982/June].
 - b. He graduated [?1982/*June].
 - c. In which [year/month] did he graduate?
 - d. What/Which [year/?month] did he graduate?
 - e. That's the [year/month] in which he graduated.
 - f. That's the [year/month] (that) he graduated.

These examples all happen to involve temporal expressions. However, null-prep also occurs in some expressions of location and directionality,

- (114)
- a. He moved ~~*(to)~~ that town..
 - b. He moved ~~*(to)~~ that place..
 - c. She drove ~~*(in)~~ that direction..
- (115)
- a. *(To) which/what town did he move?
 - b. ?(To) which/what place did he move?
 - c. ?(In) which/what direction did she drive?
- (116)
- a. *That's the town (that/Ø) he moved.
 - b. That's the place (that/Ø) he moved.
 - c. That's the direction (that/Ø) she drove.

and in expressions of reason:

- (117)
- a. They were competing ~~*(for)~~ a gold medal.
 - b. They were competing ~~*(for)~~ a good reason.
- (118)
- a. *(For) which/what medal were they competing?
 - b. *(For) which/what reason were they competing?
- (119)
- a. *That's the medal (that/Ø) they were competing.
 - b. That's the reason (why/that/Ø) they were competing.

In the following investigation, of particular note will be those questions and relatives which require a preposition in the declarative, but

allow it to be omitted in extraction constructions, will be discussed. The distinction is shown in the following contrasting examples: in (120) the preposition is required in the declarative, while in (121) it is not:

- (120) a. the place that you live
b. You live *(in) that place.

- (121) a. the way that you talk
b. You talk (in) that way.

Examples like (120), however, are rare in English (suggesting a difference from true null-prep languages), and researchers do not distinguish between examples where prepositions are required and those where they are not required in declaratives. Therefore, much of the discussion about English will show instances where the preposition may be omitted in the declarative (as in (121)).⁷²

In section 4.2.4, it was noted that certain generalizations regarding the occurrence of null-prep held for Greek, Brazilian Portuguese, and some other prepositional as well as postpositional languages. Because of the similarities in the phenomenon across these divergent language groups, it was possible to posit a single analysis for these languages. This analysis is hypothesized to be applicable to other prepositional and postpositional languages also, but it does not appear to be applicable to English.

It can be observed from the examples above, as well as other familiar facts about English, that the omission of prepositions in English does not conform to the generalizations reported for other languages. In what follows I will withhold the label 'null-prep' from the English constructions,

⁷² Examples with no preposition even in the declarative, though one is 'understood', may contribute to the confusions of learners.

and will refer to them as preposition omission (P.O.). Later, we will consider the nature of the underlying mechanism for P.O. in English. Note that English P.O. diverges from cases of null-prep discussed in earlier sections of this chapter, in that:

1. English P.O. cannot be said to occur exclusively in non-movement constructions since it is exhibited in questions, as seen in (111d, 112d, 113d). Questions in English obey subjacency, show crossover effects, etc. and thus are clearly extraction constructions, so the object of the P in these questions is a *trace* rather than a *pro*.

In relative clauses P.O. is only permitted when the relativizer is *that*, or an adverbial relative pronoun: *when*, *where*, or *why*. As for standard null-prep, PO appears to be prohibited with *which* in relatives:

- (122) a. That's the date (that/when/Ø) he graduated.
 b. That's the place (that/where/Ø) he ate.
 c. That's the reason (that/why/Ø) he left.
- (123) a. *That's the date which he graduated.
 b. *That's the place which he ate.
 c. *That's the reason which he left.

However, this does not mean that English P.O. and null-prep in relatives in other languages are alike. Note that all relative clauses in English are movement constructions as shown by the tests of subjacency, crossover, etc., even if they are introduced by the complementizer *that*. Larson (1987), discussed below, offers an analysis concerning the special quality of *which* in contrasting constructions.

In contrast to true null-prep languages, English also allows an empty COMP (as shown in (124)) which is generally analyzed as occurring after *wh*-movement. (See, among others, Chomsky, 1977, 1981, 1982).⁷³

2. English rarely exhibits pronoun retention, an essential requisite for the null-prep analysis posited in the previous section.
3. English does not exhibit weak prepositions. Rather, it is a language with strong prepositions which are permitted to strand before a *trace*, i.e. both syntactically and phonologically strong. It could be argued, of course, that in just those cases where prepositions are omitted, they are weak (and weak prepositions are compatible with pied-piping, which also occurs in English). Hornstein and Weinberg (1981) claim that PS is prohibited in adjuncts - that is, in just those cases where null-prep may occur, so it might be claimed that weak prepositions occur in piping constructions for arguments and null-prep for adjuncts. However, as Katz and Postal (1964) point out with regard to example (124a) (and as noted earlier), there are dialects which do accept stranding in adjunct constructions, even if null-prep is permitted too:

⁷³ Under the view of relatives offered in Chomsky (1982), relative clause formation involves movement of an operator phrase to COMP. The operator can be an overt *wh*-phrase as in:

- i. [_{NP} the girl [_{S'} comp *wh_i* that] I like [_{NP_i} e]]

This accounts for *the girl who (m) / that I like*.

Alternatively, it can be a phonologically-null element marked [+wh], as in:

- ii. [_{NP} the girl [_{S'} comp *O_i* that] I like [_{NP_i} e]]

This accounts for *the girl Ø / that I like*.

- (124) a. What time did he fall at? (Katz and Postal, 1964:106)
 b. What time did he fall?⁷⁴

Therefore, if we assume that stranding is an indication of strong prepositions ⁷⁵, and if these same prepositions can be null, it cannot be said that omitted prepositions in English are limited to those that are weak, as appears to be the case in other languages.

4. Instances of preposition omission in English are not recoverable by their relation to discourse antecedents, but are lexically determined locally and restricted to particular adverbial (temporal, directional, etc.) NPs.

English exhibits a phenomenon whose surface manifestations in relative clauses look very much like those of the instances of null-prep that have been examined in other languages. From the differences cited above, however, it is clear that the construction in English warrants a different analysis from that of the others. The construction in English, involves instances where the preposition, alone, is absent, as in (111d) as well as cases where the entire PP is absent, as in (111f). Following Larson, whose analysis is discussed below, both constructions will hereafter be referred to as "bare NPs" constructions.

The omission of the preposition in English questions will be examined first. This will be followed by a review of alternative analyses of "bare NPs" in headed relatives and free relatives, in turn.

⁷⁴ Additional examples were shown in Chapter 2.

⁷⁵ This is an assumption that contrasts with Hornstein and Weinberg's (1981) analysis (see Chapter 2).

"BARE NPs" IN QUESTIONS

NP adverbs, as they are so-called, refer to a class of English noun phrases that may function as adverbial modifiers, without an accompanying preposition to indicate adjunct status. Such NP adverbs were examined by Katz and Postal (K&P) (1974) in question forms, including those in (125):

- (125) a. when did he fall
b. where did he fall (p. 105)

K&P argue that the questioned constituents in these constructions are actually "reduced versions of underlying Preposition + Noun Phrase structures," corresponding to:

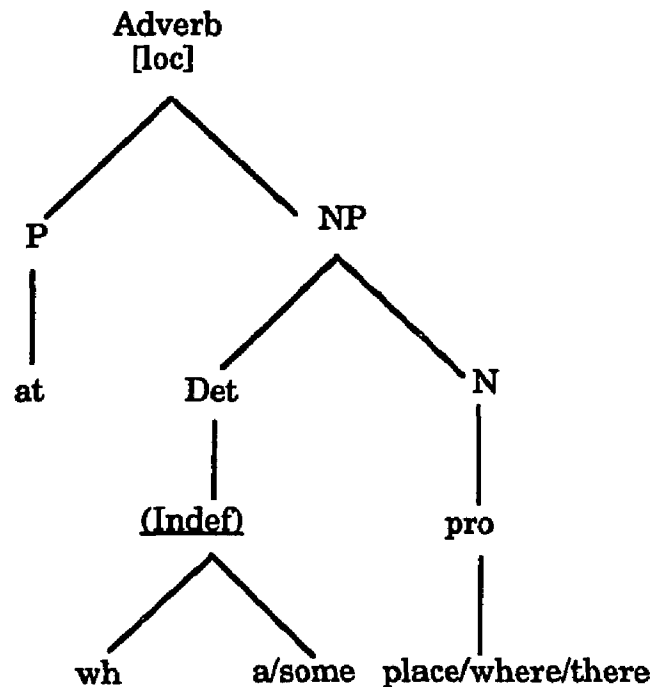
- (126) a. at what time did he fall ⁷⁶
b. at what place did he fall

K&P account for the fact that only certain NPs (i.e. *the place*, but not *the extent*) have single word variants which can form interrogatives (*at what place* = *where*; *to what extent* = ?). They argue that some nouns which form the head of adverbial constituents (i.e. temporal, locative, etc.), in some environments, have both "pro-form" and "non-pro-form" instances. Only nouns with this alternation have such single word adverbial alternants.

Thus, they claim that (125b), for example, is derived from a deep structure containing (127):

⁷⁶ K&P acknowledges that this is not a true variant of (127b) since *when* does not necessarily mean an exact *time*.

(127)

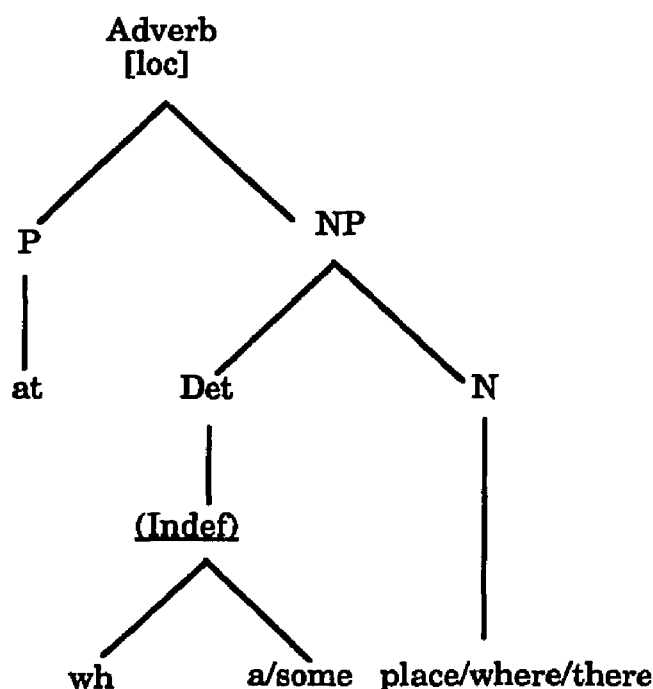


To produce (125b), K&P state that the structure in (127) undergoes a transformation "which adjoins an indefinite article to a following pro-form..." Then, a further rule is needed "which deletes a preposition before an indefinite article (containing wh or not) when it has been adjoined to a pro-form" (p. 128). Thus:

*at where ----> where

This correlates with (126b) which is derived from a deep structure alternant containing (128) which does not have a "pro-form":

(128)



There is no preposition deletion in (126) since a pro-form is required for such deletion to take place. Thus, K&P's analysis does not account for examples, like those at the beginning of this section, where the preposition has been omitted from (126), as in:

- (129) a. what way did he fall
 b. what time did he fall
 c. what place did he fall

The deep structures of such examples appear to contain configurations like that shown in (128). However, since there is no pro-form for adjunction to take place, the preposition may not be deleted under this analysis. If, on the other hand, (129) has a deep structure containing a pro-form, as shown in (127), there would appear to be little justification for a different underlying structure for the similar constructions shown in (126), where the

preposition remains overt. K&P's account also does not consider the following lexical contrasts to (129), shown in (130):

- (130) a. what way/*manner did he fall
 b. what time/*interval did he fall
 c. what place/*area did he fall

Larson (1985, 1987) proposes an analysis for such contrasts, which will be discussed below. His discussion concerns NP adverbs in declarative matrix clauses and relatives. The latter will be of primary interest here.

"BARE NPs" IN HEADED RELATIVES

In headed relative clauses, the omission of the preposition occurs with specified noun phrases, and looks superficially like a null-prep construction. Larson (1987) contrasts the examples in (131) and (132):

- (131) a. The way in which I spoke to him was rude.
 b. The way that I spoke to him was rude.
- (132) a. The fashion in which I spoke to him was rude.
 b.*The fashion that I spoke to him was rude.

In an earlier paper, Larson (1985:606) suggests that bare NPs are headed by particular nouns which have a special [+F] feature. "This feature is inherited by any NP having such an N as its head and it assigns oblique case to the NP it labels". Thus the relatives shown in (133),

- (133) a. the place (that) you live
 b.*the address (that you live

have the features, as shown in (134):

- (134) a. the place_[+F] (that)_[+F] you live [e]_[+F]
 b. *the address_[-F] (that) you live [e]

In (134a), the noun *place* has the feature [+F] which is inherited by the NP *trace*; the *trace* is thus provided with oblique case which gives it adverbial status and an overt preposition is not required. However, in (134b) *address* is [-F]. Here the NP *trace* would require a preposition to give it oblique case, which is not provided by the head noun. This also explains the ungrammaticality of (132b) where an overt preposition is needed to assign case to the NP *trace*, since the noun *fashion* does not have the required feature [+F]. In (132a), on the other hand, case is "intrinsically" assigned by virtue of the [+F] feature on the noun *way*. Larson shows that the [+F] feature occurs only on a closed subclass of temporal, directional, locative, and manner nouns.⁷⁷

The hypothesis that there is a case-assigning property for a particular sub-class of nouns has direct consequences for relative clauses with the relative pronoun *which* vs. those with an empty COMP. Larson first shows *which* relatives with preposition stranding:⁷⁸

⁷⁷ This restrictiveness accounts for additional NP adverbials, cited in Larson, that occur in matrix clauses without a preposition. In such examples, the nouns with [+F] are self-case-marking:

- i. a. I walked some place [+F].
 b. *I walked some location [-F].
- ii. a. I went that way [+F].
 b. *I went that path [-F].
- iii.a. I arrived that moment [+F].
 b. *I arrived that occasion [-F].

⁷⁸ These are further cases (see Chapter 2) which create a problem for Hornstein and Weinberg's (1981) hypothesis that adjunct prepositions do not strand.

- (135) a. the month which you arrived during/* $\emptyset$ e
 b. the ceremony which you arrived during/* $\emptyset$ e
- (136) a. the place which you live near/* $\emptyset$ e
 b. the city which you live near/* $\emptyset$ e
- (137) a. the direction which Max walked off in/* $\emptyset$ e
 b. the fashion which Max walked off in/* $\emptyset$ e

In relatives which permit *that* or an empty COMP and no stranding, we find precisely those NP heads with the feature [+F]:

- (138) a. the month (that) you arrived e
 b.*the ceremony (that) you arrived e
- (139) a. the place (that) you live e
 b.*the city (that) you live e
- (140) a. the direction (that) Max walked off e
 b.*the fashion (that) Max walked off e

Larson accounts for these differences in the following way. Recall (in fn. 73) that relative clauses in English are formed by the movement of an overt *wh*-pronoun or an empty operator into COMP. These operators are argued to bind traces which are variables and which are in case-marked positions. In adverbial relatives, case may be assigned by adverbial relative pronouns (e.g. *where*, *when*, *how*) which are "intrinsically" case-marked. Thus, (139b), for example, becomes grammatical when so case-marked:

- (141) a. the city where you live

Alternatively, case may be assigned by an overt preposition, as in (142):

- (142) a. the city in which you live
 b. the city which/that you live in

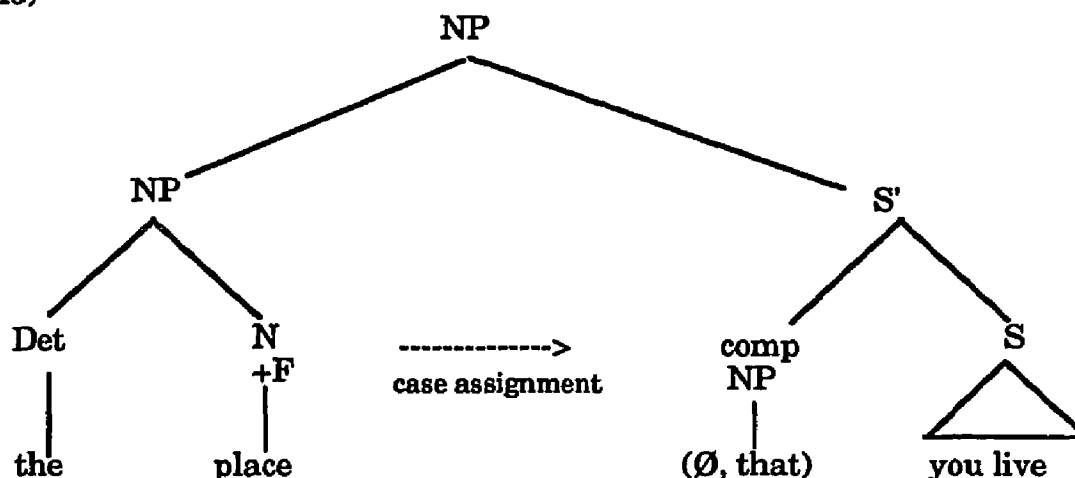
To account for examples like (138a), (139a) and (140a), where there is no overt preposition, nor an adverbial relative pronoun to assign case, Larson argues that the empty operator *O* may obtain its "feature content" from the head of the relative. Thus, if the head has the feature [+F], the operator will "absorb" this feature with subsequent case-marking; however, if the head noun has the feature [-F], the operator will not receive its required oblique case and the relative will be deviant without an overt preposition. To account for the fact that "bare NPs" may not occur with *which* in examples like (135) - (137), but may, instead strand, Larson argues:

This distribution can be accommodated smoothly in our analysis under the simple and quite plausible assumption that *which* is [-F]. Thus, if preposition stranding takes place with *which*, [_{NP} e] will occur in a Case-marked position - object of P- and the relative will be well-formed. On the other hand, if no stranding occurs, [_{NP} e] will once again be in a non-Case-marked position. Furthermore, *which* will be prohibited from obtaining a [+F] feature from the relative clause head in view of its explicit [-F] marking.
(1985:618-9)

Emonds (1987) reviews Larson's feature [+/-F] hypothesis and illustrates the operation of the case-assigning feature in a relative clause. From Emonds (p. 625):⁷⁹

⁷⁹ Larson (1985), himself, does not explicitly illustrate the operation of his case-assigning principle in relatives. This is Emonds' diagram of the process which Larson describes.

(143)



Emonds argues, however, that "this kind of case assignment by an N to a phrase *outside* its maximal projection is in fact [an]...ad hoc kind of case assignment, and it has no justification in terms of any independently defined concepts" (p. 625). He further claims that "any survey of morphological case systems suggests that the relative pronoun never receives Case from the main clause, save in exceptional situations which involve a headless relative clause" (p. 625).⁸⁰

Emonds argues, instead, for an underlying null preposition for these adverbial NPs. He proposes the Invisible Category Principle, similar to a recovery principle, to account for phonologically null categories which are structurally realized but are null in both deep and surface structure:

⁸⁰ It must be noted, however, that exceptional case marking (ECM) involves government and case-assignment by a matrix verb (over a transparent S' node) to the subject of an infinitival clause, as in:

Who_i do you expect s' [[s e_i to eat there]]

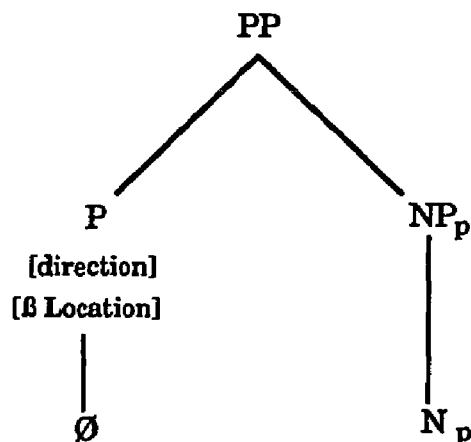
Larson's hypothesis appears to be close in spirit to ECM.

A closed category B with positively specified features C_i may remain empty throughout a syntactic derivation if the features C_i (save possibly B itself) are all alternatively realized in a phrasal sister of B. (p. 615)

Thus, this principle would allow a closed category such as a preposition to be null if its features agree with those of its phrasal sister. Specifically, a preposition (=B) with the features [+F, -G,...] may be omitted (i.e., empty), if the complement of its head noun is matched for features [+F, -G,...] (=C). For example, [P, +temporal] can remain empty if its sister is [N, +temporal].

In cases where NPs in English "tolerate an empty introductory P", Emonds proposes the lexical representation: [N, +Location].⁸¹ Unlike Larson's feature [+F] which is inherent in certain nouns and passed on to other NPs, Emonds' [+Location] denotes features on the P which are "alternatively realized on its sister NP, as shown in (144):

(144)



⁸¹ Emonds is not excluding temporal and directional features on the NP, but uses "locational" as a generic term to encompass all such features.

Emonds argues for "hidden structure" (i.e. an empty preposition) and an obligatory agreement requirement between the PP and its antecedent to account for the prepositional quality of adverbial NPs, as shown in the contrast like the following, from Larson:

- (145) a. The places that John lives are expensive.
 b. *The towns that John lives are expensive.

Under Emonds' analysis, (145a) and (145b) would be analyzed as:

- (146) a. [_{NP,+loc} The places that John lives [_{PP}[_{P,+Loc} Ø] [_{NP,+Loc} Ø]] are expensive.
 b. [_{NP,-loc} The towns that John lives [_{PP}[_{P,+Loc} Ø] [_{NP,-Loc} Ø]] are expensive.

(p. 624)

The Invisible Category Principle correctly predicts that the preposition in (146a) may remain empty since its features are carried by the NP *places*, the head of its sister NP. By contrast, lack of agreement features between the empty P and *towns*, the head of the NP sister to P, disallows (146b). Emonds does not state explicitly whether the NP alone (or the entire PP) moves into COMP. It would seem to be the case, however, that if the entire PP were fronted, the same agreement condition between the empty P and the head of its sister NP would be required; therefore, the results under either analysis would be the same.

Like Emonds, McCawley (1988) favors an analysis of adverbial NPs that posits an underlying preposition. He counters Larson's claims by showing that the adverbial NPs in question are prepositional in character. McCawley argues:

1. that an analysis with an underlying preposition automatically allows NP objects to be assigned case in the usual way by a preceding preposition⁸². This occurs without the necessity of creating a novel principle of case-assignment such as Larson's;
2. that the adverbial NPs in question behave like PPs and therefore have an underlying "zero P".

To support this second point, McCawley shows, for example, that the distribution of adverbial NPs is like that of PPs used adverbially (and not like adverbial constituents in general). Thus, only adverbs, and not PPs, can normally precede a V or A head:

- (147) a. John carefully stirred the soup (Adverb).
 b.*John with care stirred the soup (PP)
 c.*John many times stirred the soup (NP Adverb=PP).

Similarly, he shows that for each adverbial phrase with a zero P there is a corresponding phrase with an overt P:

- (148) a. I will go next Tuesday.
 b. I will go on Tuesday.

McCawley further shows that adverbial NPs can be used as adjuncts to a noun, like PPs, but unlike general adverbs:

⁸² Emonds (1985 and 1987) provides extensive evidence, from several languages, for the idea of abstract oblique/dative case-assignment on adverbial NPs, by overt or null prepositions. Kayne (1981) also provides independent evidence for underlying null-prepositions. In his analysis, a null preposition is posited as a case-assigning complementizer to explain distinctions between French and English regarding preposition stranding and the complement structures of such verbs as *croire* and *believe*.

The idea that a null preposition can structurally assign case lends further credence to the analysis of null-prep in the previous section, where the empty preposition would be a licenser and case assigner for a null object.

- (149) a. Your brother's arrival last week/on that day was unexpected.
 b. Occurrences of malaria here/in this region are quite rare.
 c. His attack on you (*viciously) left me speechless.
 d. Lucy's performance of Tzigane (*beautifully) received an ovation.

Emonds' and McCawley's claims for an underlying empty preposition in NP adverbial constructions reflect an earlier analysis by Bresnan and Grimshaw for free relatives. We turn to this construction for a final discussion of "bare NPs" in English.

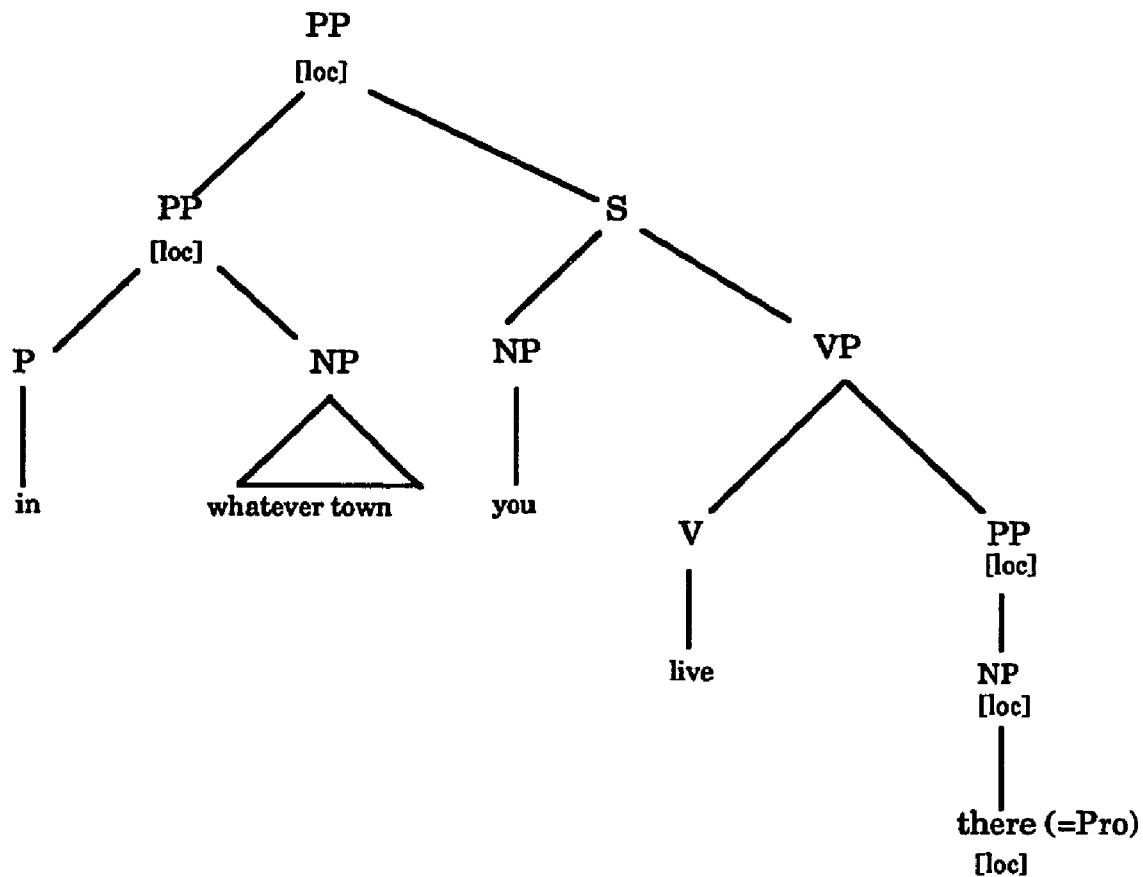
"BARE NPs IN FREE RELATIVES"

Examples of omitted prepositions in free relatives were reported in Bresnan and Grimshaw (B&G) (1978):

- (150) a. I will live in whatever town you live.
 b. I will move to whatever town you move.

For these constructions, B&G posit a PP-headed deep structure shown in (151):

(151)



A rule of Controlled Pro Deletion operates in (151) which deletes the pronoun (*there*) and coindexes its *trace*⁸³ with its antecedent, the head PP (*in whatever town*). The coindexed nodes must agree in features, in this case [loc]. The final surface structure is thus *I will live in whatever town you live* = (150a). The derivation of (150b) is comparable except that the PP is [dir].

⁸³ See Bresnan, 1978, for arguments concerning the assumption that controlled deletion leaves a trace.

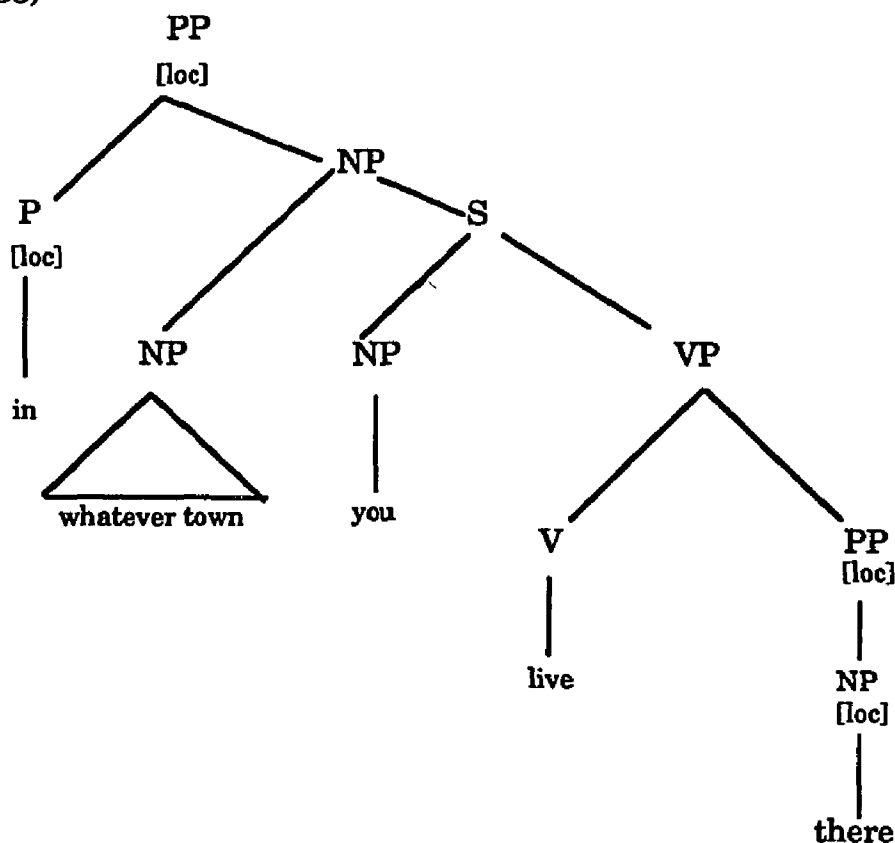
The pro-PPs of English are restricted to directional, locative, and temporal PPs. Thus, B&G account for contrasts as shown in (152):

- (152) a. Mr. Brown died in whatever decade Mr. Smith died.
 b. *I'll work on whatever problems you don't work.

In (152a) the head PP has the feature [+temp] along with a matching pro-NP which deletes. However the head of (152b) does not have the required (+temp/+loc/+dir) feature; therefore, the coindexed NP must have a governing preposition which remains overt (see below).

Crucially, B&G argue against the NP-headed analysis in (153) for free relatives such as (150) and (152a). An analysis of (150a) is shown as an example:

(153) *



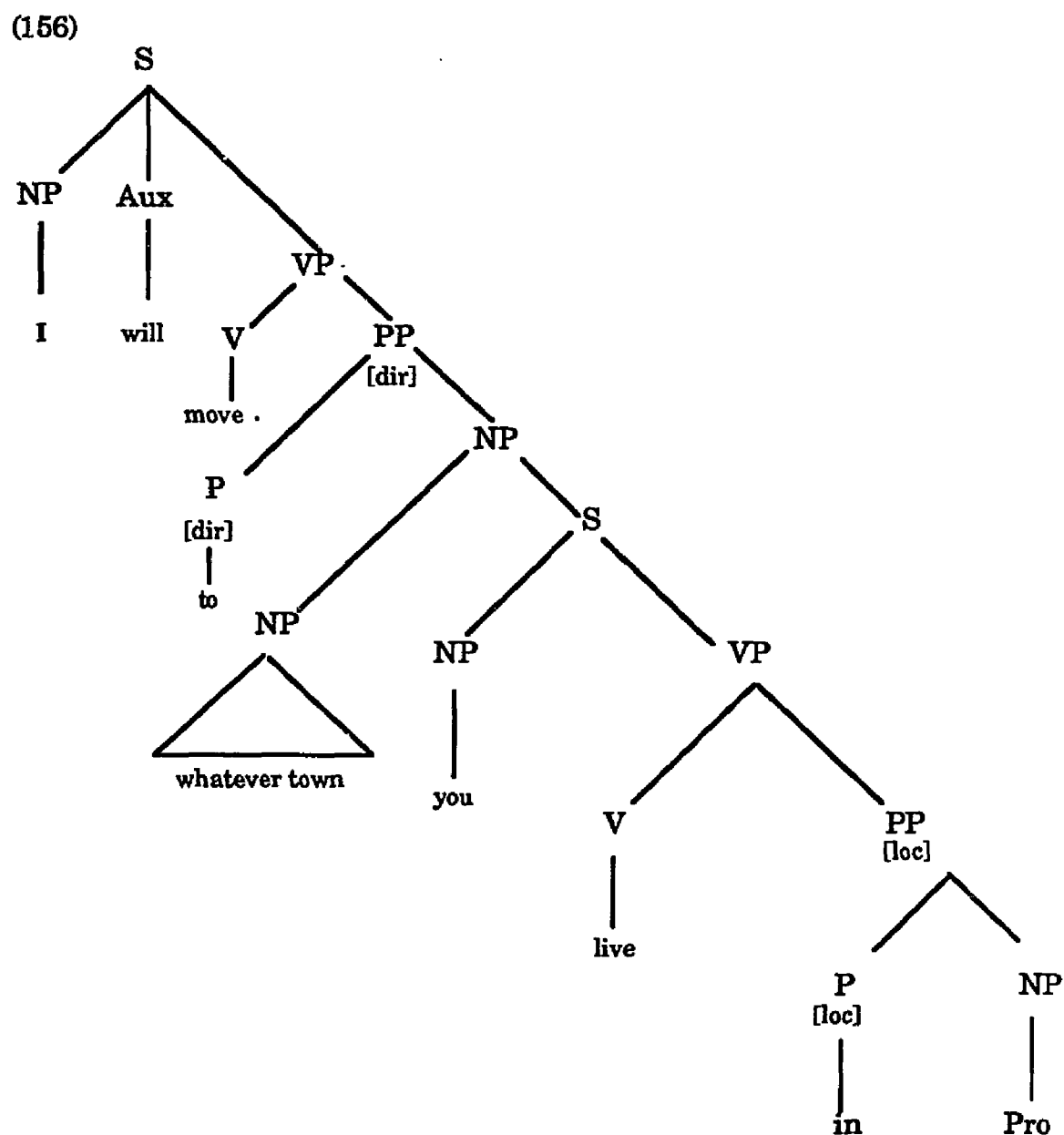
Here, the head of the relative is an NP which can not act as a controller of the lower PP since it does not have matched features. Therefore, the agreement condition which governs Controlled Pro Deletion selects (151) rather than (153) as the deep structure for the grammatical examples above. It is this agreement condition that also explains the contrasts in (154):

- (154) a. I'll move to whatever town you move.
 b. *I'll move to whatever town you live.

In (154b), the antecedent (i.e. the relative clause head) exhibits a feature [dir] which is a mismatch with the lower PP [loc] making the sentence deviant. Mismatches are permitted only when the prepositions are both overt, as in (155):

- (155) I'll move to whatever town you live in.

In contrast to the PP-headed structure (151), B&G argue for an NP-headed structure, an extension of (153), to derive sentences where both prepositions must be overt, as in (155). Thus, the complete underlying structure of (155) appears as (156):



B&G argue that, in contrast to PP-headed relatives, NP-headed free relatives do not require that the NP head have the features [+temp/+loc/+dir]. The agreement condition must be met between the NP head and the pro-NP, however, in order for Controlled Pro Deletion to apply.

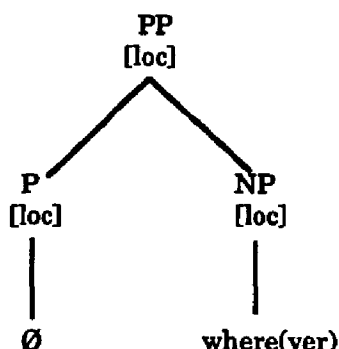
Here the condition is met since the NPs are matched for grammatical features - both are non-directional and non-locative. However, B&G argue that "only the inherently locative, directional, or temporal NPs like *there*, *then*, *where(ver)*, *when(ver)* allow omission of the governing locative, directional, or temporal preposition" (p. 356);⁸⁴ thus, in cases like (156) the governing preposition must be overt since the *trace* of Pro does not have one of the required features.⁸⁵

⁸⁴Although BG do not overtly state that the rule is also restricted to particular "inherent" prepositions, it is obviously so in my own examples:

- i. He wants to live near whatever town she lives *(near).
- ii. He wants to walk over whatever bridge she wants to walk *(over).

Thus, it appears to be the case that the kind of "basic reading" for a particular V+P that was suggested in the null-prep Greek and BP examples, is also required for the omission of the preposition in English free relatives.

⁸⁵ B&G posit the following underlying structure for those NPs which are "inherently locative, directional, or temporal...". *Wherever* serves as an example:



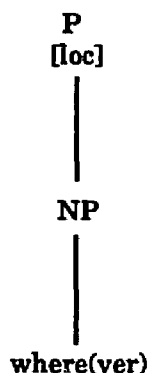
A rule then deletes a locative (temporal, or directional preposition) occurring before a matching locative (temporal, or directional) NP:

$P_{[+F]} \rightarrow \emptyset / \text{---} NP_{[+F]}$, where $F = [\text{loc}]/[\text{temp}]/[\text{dir}]$

This results in:

Summarizing B&G's analysis, omission of a preposition in free relatives is related to the fact that such structures are derived from a PP-headed relative. By contrast, free relatives requiring overtly-realized prepositions, as in (155) are derived from NP-headed relatives. It is important to emphasize that this analysis of omitted prepositions in free relatives clearly contrasts with Larson's analysis of "bare NPs" in English.

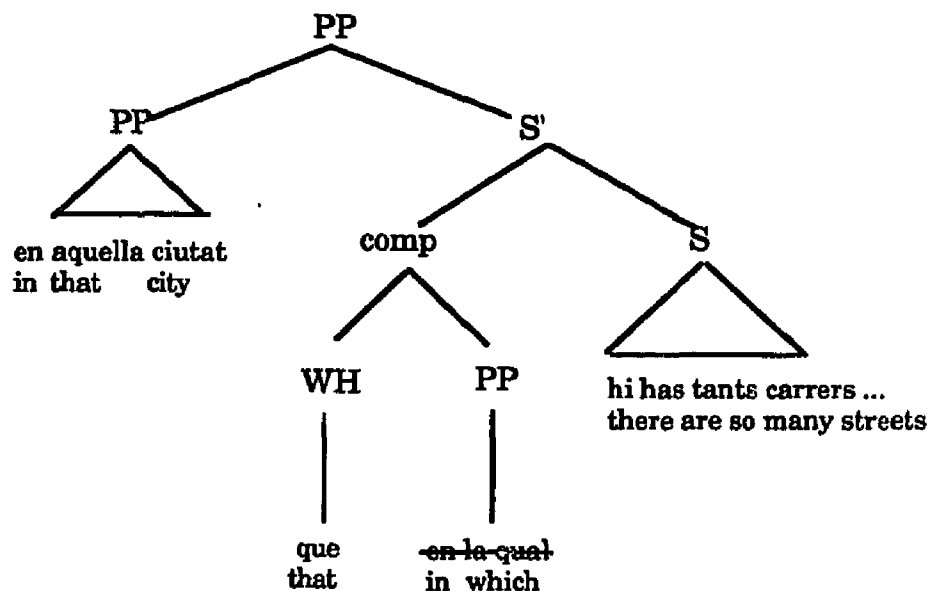
The evidence presented by B&G for free relatives is similar to the cases of null-prep "under lexical identity" that were shown in section 4.1 for Catalan. Recall that Hirschbühler and Rivero (1981) propose that a preposition can only be omitted when the relative clause is derived from a deep structure with a PP-head. The head PP is lexically identical to the PP in COMP, allowing the latter to be deleted:⁸⁶



The PP node dominating the NP *wherever* retains the feature [+loc].

⁸⁶ Hirschbühler and Rivero's analysis differs from that of BG since the former argue that the lower PP is moved into COMP by the usual wh-movement rule; the non-distinct PP is deleted and a complementizer remains. BG, on the other hand, posit a non-movement analysis where a base-generated PP functions as the head of the relative and the coindexed (locative, temporal, directional) NP in the relative clause is deleted, leaving a trace headed by PP.

(157)

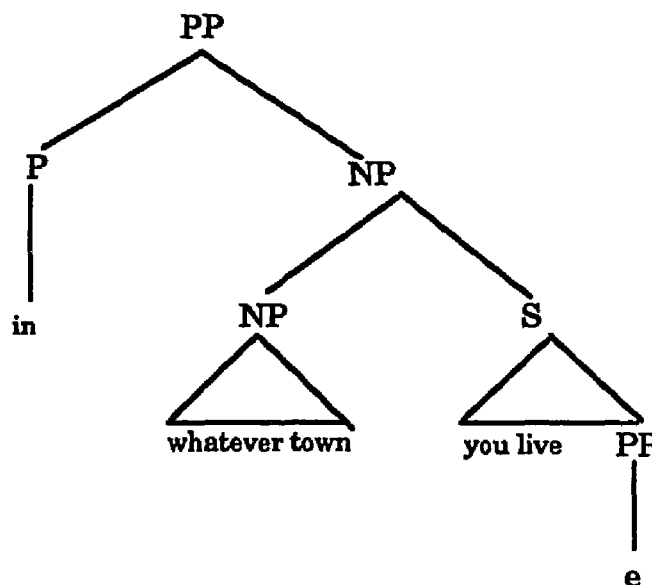


On the other hand, Allen (1980) posits an NP-head, rather than a PP-head, to explain deletion under identity in headed relatives in Old English. Similarly, Larson (1987) argues against B&G's PP-headed free relative analysis and posits that an NP-headed structure accounts for both headed and free relatives. He suggests a process of "antecedent-contained deletion" (such as the VP ellipsis in *John saw everyone that Mary did*) to account for the absence of prepositions in such free relatives as the familiar example shown in (158):

(158) I will live in whatever town you live

Under this analysis, Larson posits the underlying structure for (158) as shown in (159a):

(159a)



Then the quantified NP *whatever town you live* undergoes quantifier raising at LF (May, 1985) to give (159b):

(159b) [s [np_i *whatever town* [you live [pp e]]] [s I will live [pp in e_i]]]

This is necessary in order for the NP *whatever town you live* to move out of the PP which serves as the "reconstruction source"⁸⁷. Finally Larson proposes that there is reconstruction of the empty PP at the level of logical form, as in (159c):

(159c) [s [np_i *whatever town* [you live [pp in e_i]]] [s I will live [pp in e_i]]]

⁸⁷Well-formed antecedent-contained deletion can only take place when the relative is headed by a quantified NP, since only such NPs can undergo raising. By extracting the NP from the PP, there can be reconstruction of the missing PP at LF where the scope of the quantified NP is syntactically represented. The implicit P in the relative clause is understood as identical to the overt P in the matrix clause; thus, the first is "reconstructed" from the second.

This provides the necessary interpretation of the free relative here.⁸⁸ Crucially, Larson argues that the analysis for cases of "bare NPs" in headed relatives (as well as questions and matrix clauses) are distinct from those of free relatives where antecedent-contained deletion is the correct analysis. While Larson's analysis differs from that of Bresnan and Grimshaw, both seek to provide an account for free relatives in English which allows a PP in the surface structure of the subordinate clause to be omitted just in case it can be identified by an antecedent in the matrix clause. The examples, in section 4.1, of null-prep "under lexical identity" in some dialects of Spanish, 17th c French, Old English, as well as Catalan, appear to be similar to the free relative cases in English which have been shown here; however, since examples in the former group occur in headed relatives, there is a distinction to be made. Since such examples are also not limited to adverbial NPs, nor to quantified NPs, neither B&G's nor Larson's analysis would entirely suffice. It is possible, however, that B&G's agreement condition could apply in its strongest form; that is, that deletion can occur when there is total identity between the PP in the matrix

⁸⁸ Larson cites cases in a few dialects where the restriction of [+loc/+temp/+dir] does not apply:

- i. a. I want to be hired by the same person (that) Bill is hired.
 b. I want to be hired by whoever Bill is hired.
- ii. a. I'll dig with the same shovel (that) Bill digs.
 b. I'll dig with whatever shovel Bill digs.

Larson argues that the acceptance of such cases would be expected to be rare, since there is no "indirect evidence of the possibility of an underlying PP". By contrast, speakers of "the majority dialect" usually accept only a restricted class of PPs (i.e. +loc/+temp,etc.) which do supply clear cues that there is an adverbial PP in the deep structure.

clause and the PP in the relative (rather than agreement between specified features, [+loc] / [+temp], etc.).⁸⁹

Examples of omitted PPs under lexical identity in English free relatives, however, appear to have a different analysis from "bare NPs" in English declaratives and headed relatives. With considerations of free relatives aside, then, the temporal, locative, and directional examples of omitted prepositions, presented at the beginning of this section, have been accounted for. The analyses presented, though not identical, are fairly similar, and are all clearly different from the analysis of null-prep in Greek, BP, etc.. The only examples still to be accounted for are those containing "reason" phrases, shown in (117)-(119) and repeated here as (160)-(162):

- (160) a. They were competing **(for)* a gold medal.
b. They were competing **(for)* a good reason.
- (161) a. **(For)* which/what medal were they competing?
b. **(For)* which/what reason were they competing?
- (162) a. **That's the medal (that/Ø) they were competing.*
b. *That's the reason (that/Ø) they were competing.*

Katz and Postal (1964:134-135) note that clauses of reason have special qualities:

⁸⁹ Recall also that Hirschbühler and Rivero (1981) argue that, in Catalan, the identical PP is deleted in COMP, i.e. after wh-movement. It will be important to determine whether such an analysis can be extended to other languages exhibiting the phenomenon.

In particular, reason seems to occur as a Pro only in the presence of a preceding article that dominates wh. Hence, the reason why in relatives, why he came in complements, why in questions, all involve an attached wh on the determiner preceding the pro-form reason. But there is no *somewhy, where the determiner is without wh, and similarly no free single-word definite adverbials analogous to then, here, etc., based on reason.

Larson (1987:264) similarly suggests the uniqueness of *reason*. He notes that, unlike *when*, *where* and other wh-adverbs, *why* does not occur in free relatives, as he shows in the following examples:

- (163) a. I'm sure John went *when(ever)/where(ever)* Mary did.
b. *I'm sure John committed the crime *why(ever)* Bill did.

He proposes that this is because *why*, unlike *when* and *where*, does not have inherent case assigned to it.⁹⁰ Larson shows that the basic *reason* preposition is *because* which freely admits only sentential complements; in order for an NP object to appear, the dummy case assigner *of* must be present, as in (164b):

- (164) a. John left because Mary kissed Paul.
b. John left because *(of) that fact.⁹¹

Thus, Larson argues that:

Since reason prepositions are fundamentally S' complement-taking elements, there is, in effect, no Case associated with them, and therefore no Case for *why* to absorb. Accordingly, *why* cannot achieve the Case-independent NP status of *when* and *where*. And since it cannot be a bare-NP adverb, it cannot introduce a free relative of reason. (p. 265)

⁹⁰ As discussed in Chomsky (1981), an NP is inherently case-marked in deep structure; this is in contrast to structural case-marking of an NP which occurs at the level of surface structure.

⁹¹ By contrast, in *for that reason*, the preposition *for* assigns case to the following NP.

It has been shown, however, that headed relatives of *reason* are not excluded from "bare NP" English constructions. To order to accommodate examples like (162b), it is suggested that [+reason] be included within the subclass of NPs which have special features allowing empty prepositions. With this addition, all the cases of "bare NPs" in English, presented in this section, are accounted for.

Several competing analyses have been presented here, which attempt to account for the phenomenon of "bare NPs" in English, particularly in relative clauses. Further, it appears evident that the phenomenon of "bare NPs" in declaratives and headed relatives differs from that of omitted prepositions in English free relatives. It is also evident that researchers studying "bare NPs" appear to agree on certain properties of the construction which clearly show that it differs from the null-prep phenomenon in the languages investigated earlier in this chapter. Comparing the structural properties of null-prep (NuP) to those of the superficially similar construction of "bare NPs" (BNP) in English, the following contrasts are evident:

1. **NuP:** The empty NP is *pro* ; subjacency doesn't apply.
BNP: The empty NP is *trace*.; subjacency applies.
2. **NuP:** The empty NP is licensed by an empty P, and not subject to ECP.
BNP: The empty NP is properly governed by an empty P (or a V, depending on the analysis), and is subject to ECP.
3. **NuP:** Null-prep occurs only in relative clauses.
BNP: Bare NPs occur in questions and main clauses as well as relatives.
4. **NuP:** In relatives, null-prep alternates with pronoun retention.
BNP: In relatives, a bare NP construction does not alternate with pronoun retention.

5. **NuP:** Null-prep relatives are **always introduced by a complementizer**, never a relative pronoun.
BNP: Bare NP relatives are **may be introduced by a relative pronoun or a complementizer**.
6. **NuP:** The **P is phonologically weak**. (In some languages it may be also have a strong counterpart which may strand).
BNP: The **P is syntactically strong** (i.e. under those analyses which posit an empty P); it is argued that only syntactically strong prepositions may be proper governors. It is also **phonologically strong**. Such strong prepositions may be overt or non-overt.
7. **NuP:** The **P is followed by a morpheme boundary** and is, therefore, a bound morpheme; as such, it cliticizes to its empty object NP. It is null only when the following NP is null.
BNP: The **P is followed by a word boundary** which does not permit cliticization. It is distinct from the following NP and may be null or overt; if overt, it may pied-pipe or strand.
8. **NuP:** Null-prep occurs **primarily in argument phrases**; adverbial PPs are usually restricted from occurring in the construction.
BNP: Bare NPs in English relatives occur **primarily in adjuncts**, with adverbial PPs.
9. **NuP:** The **P is always overt in (corresponding) declaratives**.
BNP: The **P is sometimes overt and sometimes non-overt in (corresponding) declaratives**.
10. **NuP:** The occurrence of null-prep in a language is **independent of lexical properties** of the relative clause head.
BNP: Bare NPs in English are **lexically restricted to a sub-class of adverbial NPs** (with some rare exceptions, see footnote 85); in relatives, the NP head (or within the head, depending on the analysis) is generally confined to this sub-class.

In the following section, the null-prep construction will be argued to be within core grammar, in contrast to "bare NPs" in English.

4.4 Concluding discussion: the parameters for null-prep

An examination of null-prep in several languages was undertaken in this chapter for the reasons given in its introduction: (1) To determine whether null-prep is a phenomenon which is exhibited in natural

languages; (2) To determine, through a typological survey and a structural analysis, whether the structure could, arguably, represent the initial setting(s) of the relevant parameter(s).

The first point was undeniably supported through cross-linguistic evidence. The second is more complex and warrants some discussion.

It was found that null-prep in languages like Greek and Brazilian Portuguese is closely tied to the same parameters that permit pronoun retention in non-movement constructions. In the case of English, this is not so.

Although this research is still in its early stages, the following picture emerges for relative clauses across languages.⁹² As discussed in section 4.2.4, three parameters appear to be involved in the relativization of the object of a preposition. Though there are, in principle, a number of different ways of choosing parameters to characterize the array of possible languages, the parameters proposed below respect the correlations identified in earlier sections of this chapter. For each parameter, suggested markedness ratings are given (unmarked=*U* ; marked=*M*):

I. +/- WH-movement⁹³

II. +/- *P* licenses a *pro*/properly governs a *trace*, where +=*M*.⁹⁴

III. *P* has *morpheme/word boundary*), where word boundary=*M*.

⁹² The principles involving questions would encompass related parameters, but will not be ventured here since null-prep rarely appears in these constructions. (By contrast, note the "bare NP" cases in English questions reported earlier).

⁹³ The parameter settings here have not been given markedness values until more research has been conducted, particularly regarding +/-wh-movement among L1 learners. (See Chapter 5 for further details.)

⁹⁴ It might be that this parameter is broader than indicated here. *P* cannot license PRO because PRO must be ungoverned, but in some languages *P* might be said to license NP trace (as in 'pseudo-passives').

Prepositions with a morpheme boundary will be referred to as phonologically weak; those with a word boundary as phonologically strong. Prepositions that govern an empty category will be called syntactically strong; those that do not are termed syntactically weak. It should be noted, however, that a preposition that is syntactically strong enough to license *pro* may not be strong enough to properly govern *trace*. No attempt has been made to represent this graphically in the table. These parameters and the markedness values involved are now shown in Table 4.2.

Table 4.2. Parameters for null-prep and related constructions.

I: II:	- WH-movement P licenses <i>pro</i>		+ WH-movement P properly governs <i>trace</i>		
	+ M (syn-stg)	- U (syn-wk)	+ M (syn-stg)	- U (syn-wk)	
				non-lex = U	lex = M
III: morpheme boundary (ph. weak)	(a)	(b)	(e)	(f)	(g)
NuP		PR	*	PiP	PR (?)
U	UM	UU	UM	UU	UM
word boundary (pñ-strong)	(c)	(d)	(h)	(i)	(j)
"PS"		PR	PS	PiP	PR (?)
M	MM	MU	MM	MU	MM

Notes:

1. Abbreviations: P = preposition; ; PiP = pied-piping; PS = preposition stranding; "PS" = non-movement "stranding"; PR = pronoun retention; syn-stg = syntactically strong; syn-wk = syntactically weak; ph-stg = phonologically strong; ph-wk = phonologically weak; lex = *trace* with a lexical realization; non-lex = *trace* without a lexical realization.

2. Relative markedness values are indicated: U = unmarked; M = marked. The markedness value of a particular construction is presented here as the sum of the markedness values of each of its contributing parameter settings (e.g. MM = highly marked).

In languages with non-movement relatives, the least marked option would be pronoun retention, especially as clitics (morpheme boundary) in box (b) but also possibly as non-clitics (word boundary) in (d). This option appears, for example, in Arabic and Persian, and in many other languages (see Keenan and Comrie, 1977). The slightly marked option of null-prep in (a) appears in languages such as Greek and Brazilian Portuguese, as extensively discussed above. Importantly, there is an implicational relationship such that null-prep languages always permit the less marked pronoun retention option; the reverse, however, does not hold. That is, a P that can license an empty pronoun in a relative clause can also license a lexical pronoun, though not necessarily vice versa. The most marked option for non-movement relatives is the rare "stranding" ("PS") construction in (c) which is found in Québécois and Montreal French as discussed; like null-prep, "PS" always alternates with the unmarked pronoun retention construction in these languages, and seems to allow null-prep as well.⁹⁵ The implicational universals for non-movement relatives therefore appear as follows:

If *UM* , then *UU*.

If *MM* , then *UU* , and probably *UM*.

In +WH-movement relatives where a preposition may not properly govern a *trace*, the whole prepositional phrase is usually fronted in the familiar pied-piping (PiP) construction of most romance languages (shown in (f) and (i)). Here the *trace* of the moved wh-NP remains phonologically null, represented by the unmarked "non-lexical" alternative. A marked

⁹⁵ Data on null-prep in these languages must be further investigated to support a clear correlation between "PS" languages and null-prep.

alternative ("lexical") would be a resumptive pronoun (i.e. pronoun retention, as shown in (g) and (j)); this represents a phonologically realized *trace* following a P in movement relatives, but this option is highly questionable.⁹⁶ In languages such as Swedish and English, there is preposition stranding (as shown in (h)), i.e. there are "strong" prepositions to properly govern the *trace* of a prepositional object. In those languages, the option of PiP is also available; piping is compatible with both strong and weak prepositions. The implication universals for movement relatives therefore appear as follows:

If *MM* , then *UU*. (or *MU*.)

Finally, the box (e) that parallels null-prep in non-movement constructions is marked in Table 4.2 as impossible. This is to claim that null-prep in movement constructions is not an option offered by core grammar. This is compatible with the fact that it is apparently non-existent. But it is not obvious, perhaps, that this assumption about UG is justified. In particular, the markedness assignments on the chart imply that null-prep in movement should be less marked than stranding, which does occur.

It is suggested here that this is because some sort of natural congruence is required between the syntactic 'strength' and the phonological 'strength' of a preposition. The most common situation is for a preposition to be weak in both respects. This is the case of *UU*; it is maximally unmarked, and also congruent. The *UM* and *MU* alternatives are less marked than *MM*, but the former are non-congruent while the

⁹⁶ Anthony Kroch (personal communication) argues that the resumptive pronoun option does not occur in +WH-movement languages, but Sells, 1981, suggests that it does. I will not consider the resumptive pronoun alternative any further here; if necessary, that column under +WH-movement could be deleted from the chart.

latter is congruent. This would explain why the *MM* alternative does occur despite its high markedness value. Let us now consider the non-congruent combinations. It is not actually certain that the *MU* cases exist, since they would be superficially like the *UU* cases. The pronoun would have a lexical object (either in situ, or piped), and it will not be easy to tell whether the preposition must, or only may, cliticize. (Perhaps some language will be found in which a sharp distinction is detectable.) Now consider the *UM* cases, which are our primary concern in this dissertation. In non-movement constructions, *UM* is well-attested though less common than *UU*. In movement constructions, it is claimed here that *UM* does not occur. The difference can be explained if we suppose that a P needs to be 'stronger' syntactically to license a *trace* than to license a *pro*. Therefore, a P that governs a *trace* must be syntactically very strong, so it would violate the congruence condition if it were also weak enough phonologically to cliticize to its object. By contrast, a P need not be so strong to license *pro*; hence there is less of a clash if it is strong enough to license *pro* but weak enough phonologically to cliticize to it. As another aspect of this same distinction, movement stranding (PS) appears to be more common than non-movement stranding (designated "PS"), even though both are classed as *MM*.

It should be noted that this general idea can be formulated either as an absolute restriction (clitics cannot properly govern), or in the weaker form of a congruence expectation - in the latter case, it is allowed that some language might contain prepositions that are weak phonologically though very strong syntactically. This would not, however, be expected.

To summarize: for -movement relatives, the parametric values resulting from the analysis proposed here would indicate that pronoun

retention is the least marked, followed by null-prep, and "intransitive" stranding the most highly marked construction:

PR > NuP > "PS"

For +movement relatives, the analysis predicts that pied-piping is the most highly favored, followed by preposition stranding. Null-prep as a parametric option would be impossible or at least highly improbable:

PiP > PS > *NuP

Unlike null-prep in non-movement contexts, the structure that has been examined as "bare NPs" in English would represent a lexically-restricted construction outside core grammar. According to Chomsky (1986:151), the grammar is comprised of "a system of principles with parameters fixed, along with a periphery of marked exceptions". No clear criteria have been given for determining the boundary between the two. One can only attempt to describe a phenomenon relying solely on universal principles (and a language-specific lexicon, and parameter settings); if one fails, this is a prima facie reason for assuming that the phenomenon is peripheral. Though further research is clearly needed, it seems most likely that this is the case for the "bare NP" constructions. As we have seen, linguists have proposed underlying null prepositions for specified NPs, with or without accompanying deletion rules (Bresnan and Grimshaw, 1978; Emonds, 1987), and specified feature-markings on particular NPs for purposes of case assignment (Larson, 1985). Such lexically-governed rules, restricted to particular domains which may vary among dialects, would have to be acquired piecemeal by the L1 learner, as exceptions to the general

principles that result in PiP or PS. If we accept Larson's analysis, for example, it can be suggested that "bare NPs" are like exceptional case marking constructions which are suggested by Chomsky (1981) to result from a peripheral rule (of S' deletion) added to core grammar. Similarly, "bare-NPs" in English can be argued to result from an exceptional rule (or rules) within the periphery.

The analysis of null-prep in this chapter was undertaken with the ultimate goal of providing a linguistic explanation for the L2 null-prep findings reported in Chapter 3. That is, if null-prep is a natural language phenomenon, the structure must be incorporated into the theory of UG. We have seen that there are (at least) two quite distinct kinds of null-prep phenomenon, which fit into UG in very different ways: one as a result of core parameter setting, the other as a peripheral exception. Null-prep represents a genuine linguistic hypothesis on the part of L2 learners, and so it must be incorporated into an account of how parameter settings are related to language acquisition. The final chapter of this thesis offers some possible explanations for the acquisition data, based on the linguistic analysis proposed here for the null-prep construction. We need to know whether L2 learners are acquiring the peripheral English "bare NP" construction as a peripheral construction, or whether they are trying to accommodate it by setting core parameters, assimilating it to the more natural null-prep constructions of Greek, etc. In either case, we need to know why they make the mistake of overgeneralizing it.

Chapter 5: Conclusions and Directions For Future Research

5.0 Introduction

The fundamental question addressed in this dissertation is how adult learners acquire their L2 grammars. In this concluding section, the acquisition findings reported in Chapter 3 and the linguistic analyses posited in Chapter 4 will be integrated. The purpose will be to offer explanatory accounts of the L2 data, specifically the finding of null-prep in the L2 development of pied-piping and preposition stranding in English.

Much recent work in second language acquisition research has centered on the possibility of a critical period for language acquisition which lasts only until puberty (Lenneberg, 1967) or even earlier (Geschwind, 1970; Krashen, 1973). If UG is available to guide learning only during this period, then adult second language learners are not guided by universal principles and parameters as are children learning a first language.

Under a UG hypothesis, children learning their first language have innate knowledge of the principles of universal grammar as well as the parameters which account for variation across natural languages. On the basis of positive evidence from the available input of a particular language, the child sets her parameters to the appropriate values and thereby acquires the L1. If adult second language learners likewise have access to UG, acquisition would proceed in a similar manner.¹

¹ Adult L2 acquisition might not be exactly identical to child L1 acquisition if cognitive maturity, computational capacity, and other such factors influence the way in which input is processed or analyzed.

In testing a parameter framework for L2 acquisition, researchers have offered at least three possibilities: (a) L2 learners may begin acquisition with the unmarked parametric setting suggesting that they are guided by UG principles and do not utilize knowledge of their L1 parameters. (Mazurkewich, 1984,1985); (b) L2 learners begin acquisition with the parameter set to its L1 value and then reset it to the L2 value upon positive evidence in the target language input. (Flynn, 1984, 1987); (c) L2 learners do not set parameters for the L2, but only have recourse to certain basic UG notions (e.g. structure dependency) which are accessible to them from the L1; in contrast to acquisition of the L1, adult L2 acquisition involves general learning strategies and information processing mechanisms (Bley-Vroman, 1987; Schachter, 1988; Clahsen and Muysken, 1989).

L2 studies testing these UG hypotheses have generally been of two kinds:

(1) Child L1 acquisition of particular structures has been compared to adult L2 acquisition of those same structures. The implication is that if the mechanisms of L1 and L2 acquisition are the same, then the process of acquiring these structures should follow a similar developmental sequence. Results of these studies have varied. Some show similar sequences of development, as in the morpheme studies of Dulay and Burt (1974) and Bailey, Madden, and Krashen (1974), and studies of negatives and interrogatives (Ravem, 1974). Others show distinct differences, as in the word order and inflection studies conducted by Clahsen and Muysken (1986; 1989).

(2) A particular principle of UG has been tested among second language learners. The assumption, here, is that L1 learners invariably

have these principles and their associated parameters instantiated in their grammars. Second language studies of this second type have tested relatively few UG parameters, with conflicting results (see Chapter 2). The pro drop parameter has been tested by Phinney (1987) and White (1985), for example. The head-direction parameter has been studied by Flynn (1987), whose research design and conclusions have recently been criticized by Bley-Vroman and Chaudron (1987) and Eubank (1989). The principle of subjacency, with related parametric variation, has been tested by White (1985), Felix (1988), and Schachter (1988).

In this research, the acquisition of a particular element of the L2 grammar was investigated, that is pied-piping and preposition stranding. In the process of acquiring these structures in English, adult L2 learners were often found to omit the required preposition, a phenomenon that was termed "null-prep". Null-prep occurred as an early as well as a later, persistent stage in the L2 learner's interlanguage, unrelated to properties of the L1. The nature of this phenomenon of acquisition was then examined in detail and possible explanations for it were sought. Thus, the investigation has involved a detailed description of what L2 learners are doing and, crucially, why they are doing it.

5.1 Revising the UG questions

In contrast to prior studies, the research in this dissertation clearly indicates that the question "UG or not UG"² is not sufficient and, indeed, too crude to be of theoretical value. In this study, null-prep represents an

² This is taken from the title of a paper by duPlessis et. al, 1987, *UG or not UG, that is the question; a reply to Clahsen and Muysken*.

element of the L2 grammar which shows that learners are doing something wrong. They may be making this mistake because of one or more important differences between L1 and L2 learners. That is:

- (a) L2 learners already have a particular L1.
- (b) L2 learners may not have access to all of UG.
- (c) L2 learners may not have access to innate "principles of learning".

It was shown in Chapter 3 that (a) is not relevant, since second language learners displayed null-prep regardless of the L1. Therefore, we are left with (b) or (c), both of which are refinements of the "all or nothing" UG hypotheses. It will be shown below that there are many ways in which defective UG could lead to null-prep. The important question is to determine which part of UG is missing, and how learners create the grammar they do on the basis of evidence from the available input. Presumably if all of UG were missing, L2 learners would make much worse errors than they do. For example, learners frequently hear relative clauses with an empty COMP, as in:

That's the boy she loves.

Such sentences appear to give evidence that English allows objects to precede subjects, yet L2 learners do not make the mistake of overgeneralizing this feature to the rest of the language; that is, these learners do not systematically conclude that English has OSV word order, as in:

The pizza the girl ate.

The cat the boy chased.³

³ These are not to be construed as accurate topicalization constructions which, as noted below, Schachter argues are rarely produced by even highly proficient L2 learners.

The question then becomes, why the same learners hypothesize null-prep to be part of the English grammar.

Generally missing from other UG studies, then, have been several questions. These include: how learners analyze the input to create their correct or incorrect grammars; whether L2 learners know which constructions in the input are core and which are periphery, the way L1 learners do; whether or how they are setting or missetting parameters, and which particular parameters go awry; whether the grammars they create are core or peripheral grammars. Crucial to these questions is the broader issue of what constitutes "a possible grammar". Since linguistic theory has not yet clearly posited constraints on the periphery, any construction is potentially permitted in natural languages. Therefore, it cannot be determined whether or not L2s are creating a "possible grammar" (i.e. whether UG has been violated). Until we have a more constrained theory, then, the focus of our questions must be shifted and the questions, themselves, enriched.

It was found in Chapter 4 that null-prep in natural languages is a core construction involving three parameters. The omission of the preposition in English, however (i.e. "bare NPs), was argued to be in the periphery. In order to posit explanations for null-prep in the L2 grammar, now, the following specific questions can be posed:

1. How does the L2 learner's null-prep grammar differ from English grammar?

2. Why do L2 learners hypothesize a null-prep grammar for English?

- a. Is it because null-prep results from the unmarked values of the parameters involved?
- b. Is it because L2 learners are misled by the input of English?
- c. Is it because of learnability considerations?

Question 1 asks exactly what the mistake is that L2 learners are making. The answer, which will be discussed below, is that L2 learners are mistakenly analyzing a peripheral construction as if it were a core construction.

The second question, then, is why learners would be likely to make this mistake. Let us temporarily assume that L2 learners are setting core parameters to account for null-prep. Then, there are three main possibilities to be considered: (a) that learners invariably go back to the initial (unmarked) parametric setting, and for some reason are slower than children to reset the parameter on the basis of English input; (b) that learners are misled by the input of English; that is, English seems to give evidence for parameter values which are not, in fact, correct. This evidence would have to be assumed to be of a kind or complexity not accessible to L1 learners or ignored by them as irrelevant, if they do not make the same error;⁴ (c) that L2 learners do not have the Subset Principle to constrain their data and their grammars.

As shown in Chapter 4, and further discussed below, null-prep occurs in the L2 grammar even though it does not represent the least marked values of the relevant parameters, contrary to the suggestion in (a).

⁴ It is sometimes being proposed that the limitations on the complexity of the data that a child can process are beneficial and serve to guide the child in her selection of hypotheses. L2s, however, can (cognitively) process sentences that they are not ready to acquire.

It will be proposed here that adult second language learners are misled by the input of English, as suggested in (b) into creating a grammar with impossible parameter-settings. It is also possible that L2 learners do not have access to the Subset Principle to constrain them in their hypotheses; this leads them to assume the wrong grammar for English.

This chapter will describe the factors that lead to these conclusions and examine the implications in detail. Directions for future linguistic and acquisition research will then be suggested.

5.2 UG explanations for the null-prep phenomenon in L2 acquisition

A UG explanation is based on the assumption that the second language learner's linguistic hypotheses are guided by universal principles. In terms of a parameter setting model, this means that learners are equipped with a network of parametric options provided by UG, with parameter values ordered in accord with the Subset Principle, and triggered by specific input.

Chapter 4 reports a preliminary exploration of the typological characteristics of null-prep in several languages of the world, to serve as a basis for determining its syntactic structure, and hence which parameters it invokes. Within prepositional languages, null-prep was found to be evident only in contexts where pronoun retention also occurs, and in languages where clitics exist. Importantly, it occurs only in non-movement constructions with an invariant complementizer. It exhibits several different degrees of recoverability which range along a continuum from fully recoverable to fully ambiguous. In movement constructions, null-prep does not exist in core grammar; it is argued that the superficially

similar "bare NP" construction of English, which is lexically sensitive and idiosyncratic, is a highly marked peripheral structure.

Three parameters were claimed to be implicated in the core null-prep structure: a parameter offering the options of +/-wh-movement in the syntactic component, a parameter establishing +/-licensing options for null-elements, and a parameter for +/-cliticization options for prepositions. It was argued that null-prep in non-movement constructions (ie. relative clauses in such languages as Greek and Brazilian Portuguese) is more highly marked than pronoun retention and, thus, cannot represent the fully unmarked parametric setting of all three parameters. Nevertheless, it might be the least marked combination of settings compatible with the L2 learner's English input.

The question, then, is how L2 learners are construing the input they receive - whether they are treating null-prep as a core or a peripheral construction and if there is a coherent version of the UG model which can explain why L2 learners of English are driven to the null-prep analysis.

5.2.1 The non-movement hypothesis for null-prep

One possible explanation for null-prep in L2 acquisition is that learners assume non-movement for relative clauses. This would be consistent with the fact, as noted in Chapter 4, that null-prep constructions are quite common in non-movement constructions.

L2 learners might be led to hypothesize non-movement by evidence of *that* -relatives in English, if these were construed as relatives introduced by a complementizer rather than a relative pronoun. Universally, it appears that relatives with invariant complementizers are usually non-movement

constructions containing *pro* rather than *trace*. English is apparently exceptional in this respect, but L2 learners may know this.

The idea that L1 and L2 learners begin by hypothesizing non-movement relatives has some empirical support. Lillo-Martin (1989) shows that in American Sign Language, first language learners show strong island constraints in *wh*-movement constructions (i.e. questions) but violate these constraints in relatives. She takes this to show that they assume non-movement (i.e. *pro* rather than *trace*) in relatives. First language learners of French are also shown by Labelle (1988b) to begin the acquisition of relatives, though not questions, with a non-movement construction, as described in Chapter 2; that is, up until the age of six years, they exhibited, exclusively, a "resumptive-pronoun strategy" as in (1) or a "gap strategy" as in (2):

- (1) celle-la que le papa lui montre un dessin
that-one that the father to-her shows a drawing
- (2) sur la petite fille que le monsieur i(l) montre un dessin
on the little girl that the man he is showing a drawing (=to her)

In contrast, Labelle shows that children show evidence of *wh*-movement (i.e. pied-piping) in questions at an early age.

Among L2 learners, non-movement also appears to be the initial hypothesis for relative clauses. Martohardjono and Gair (1989) report Subjacency violations from Indonesian learners of English which suggest that they assume non-movement as their initial hypothesis for relative clauses. Similarly, White (1988) found that some of her adult French subjects learning English as L2 accepted relative clauses exhibiting *wh*-island (i.e. Subjacency) violations, which suggests that they are initially

assuming a non-movement analysis. Schachter (1988) reports similar findings especially among Korean learners of English.

Finally, Schachter (1988:224) notes that L2 learners are deficient in their attainment of movement constructions in general. She cites "the non-occurrence in proficient second-language speaker production of...raising, clefts, pseudoclefts, topicalizing rules, adverb movement rules - in fact, movement rules in general". It should be noted, however, that these are all optional movement constructions, not essential to grammatical use of the language and therefore not an urgent priority for learners; one could wonder, however, why even proficient L2 speakers do not exercise such options.

It is not untenable, then, to hypothesize that the adult L2 learners of English in the study reported here are constructing a non-movement structure during the period in which null-prep appears in their interlanguage. Once a learner has concluded that English relatives are non-movement constructions, it would be quite compatible with UG to assume that they can have null-prep. Learners might assume this because they are going back to the initial setting of the non-movement parameter, or because they are starting at the L1 value.

The latter is not plausible. It was shown that L2 learners exhibit null-prep in relatives regardless of whether or not it occurs in the first language. It appears, then, that they are not starting at the parametric settings of their native languages, but are uniformly choosing the unmarked option defined by UG even if different from the L1.

Such a hypothesis is in accordance with the analysis presented in Chapter 4. It was shown, there, that non-movement relatives may contain either a lexical pronoun or a *pro*, bound by an empty operator which is

coindexed with the head noun. The overt or empty pronoun may be the object of a preposition which, in the case of the latter (i.e. *pro*), licenses the empty category. These non-movement constructions were argued to involve the following parameters:

1. +/-P licensing *pro*, where + is marked
2. P has morpheme/word boundary, where word boundary is marked.

The lexical pronoun results from the unmarked settings of each parameter (P does not license *pro*; P has morpheme boundary) and is, thus, the least marked option. The bound *pro* in null-prep relative constructions is permissible if specifically licensed by P, but is more marked than pronoun retention. Null-prep results from a marked option (P licenses *pro*) and an unmarked option (P has morpheme boundary); the latter requires an empty preposition since without a word boundary it must cliticize to its empty object. The "intransitive" stranding construction ("PS"), found in some dialects of French, was shown to be the most highly marked option of the parameters for non-movement relatives (P licenses *pro*; P has word boundary). Thus, the relative markedness value of these constructions, from least to most marked, is:

pronoun retention - null-prep - "PS"⁵

L2 learners acquiring structures where the object of a preposition is relativized might begin with the unmarked setting of both parameters (pronoun retention) whether or not they had data from the input to trigger this option. However, with little or no positive evidence of pronoun retention

⁵ There are four options as indicated in Chapter 4, the other being pronoun retention with a phonologically strong preposition; since it is not clear that there is actually a distinction between two kinds of pronoun retention, the more plausible one is indicated here.

in the input of English, they move to null-prep, the slightly marked option. This hypothesis may also be strengthened for them by the prevalence of preposition stranding in the input which shows that a preposition can license an empty category in English; that is, assuming non-movement, these L2 learners have (misguided) evidence of what they believe to be "PS"; guided by UG, they choose null-prep where the preposition is phonologically weak. (Note, however, that according to the Subset Principle both values of a parameter may be selected, but this is a highly marked option.)

In order to acquire pied-piping, then, these learners would have to go back and re-set the movement parameter to the +movement setting. Thus, the process would be:

non-movement (NuP/"PS") --> movement (PiP/PS)

Therefore, by assuming non-movement and misconstruing the input, learners would be guided by UG principles and parameters in the development of these L2 constructions.

Problems for the non-movement hypothesis

The non-movement explanation becomes less plausible when it is noted that L2 learners do not insist on an invariable complementizer in null-prep relatives. Recall from Chapter 3 that there was no significant difference in acceptance rates between *which* vs. *that* relatives when the preposition was omitted. If learners have access to UG, they know that a relative pronoun is a sign of a movement construction. Nevertheless, it is possible that learners are simply not distinguishing correctly among the various items that can introduce English relative clauses, since English,

for the most part, does not inflect its relative pronouns (except for *who* /*whom* in some dialects). This lexical mistake could result in a syntactic misanalysis.

A much more serious problem with the non-movement UG explanation is the prevalence of null-prep in L2 questions. As shown in Chapter 4, there is virtually no evidence of null-prep in the questions of any language, prepositional or postpositional, except for the adverbial "bare NP" construction in English which is idiosyncratically restricted to a few lexical items within a few categories. It was argued in Chapter 4 that the absence of null-prep in questions, in prepositional languages, follows from the fact that null-prep only occurs in combination with *pro*, while questions normally require movement leaving a *trace*. Alternatively, there may be no empty category in a question at all. This is characteristic of postpositional languages, where question words remain in situ; then the postposition is required as usual as an overt case-marker.

To explain null-prep in questions, in accord with UG-defined options for null-prep, it would have to be argued that L2 learners are choosing non-movement for questions as well as for relatives. Let us consider this possibility:

1. If L2 learners were assuming non-movement in questions, they could presumably be hypothesizing a topic/comment structure. A complication here is that there is aux-inversion in English questions, though not in (other) topicalized constructions in English:

(3) a. Which movie did the girls see last night?

and not:

b. topic[Which movie] + s[the girls saw last night].

There is no evidence that null-prep is associated in L2 acquisition with auxiliary inversion. However, it is conceivable that learners conclude that only interrogative topics induce inversion, so this does not constitute a strong argument against a non-movement analysis for L2 questions.

2. Another kind of non-movement question construction occurs in Irish (see McCloskey, 1979), where it is based on a relative clause. If L2 learners assumed English questions to have this analysis, they would assign them the structure:

(4) Is it this movie which John likes?

However, such non-movement questions are so rare across languages that they must presumably be quite highly marked. Thus, it is questionable that L2 learners would start by hypothesizing such an unusual construction, especially as, unlike (4), typical English questions show no surface indicators of relative clause structure.

Movement vs. non-movement in L1 questions

The question of whether children learning L1 questions begin with movement or non-movement becomes crucially important here. If it is found that children clearly begin acquisition of questions with a default setting of +movement, then L2 learners who assume non-movement for questions are not being guided by UG.

The movement/non-movement issue in L1 acquisition is in the process of lively debate, the character of which can only be briefly illustrated here. On one side are a few researchers who argue that children acquiring the interrogative construction do not begin with movement.

Nishigauchi and Roeper (1987) claim that children begin all *wh*-movement constructions with non-movement and *pro*, arguing that *pro* is the unmarked option. They suggest *pro* as a "primitive" empty category which is tied to a contextual referent before binding has been acquired. The evidence they present is that children up to the age of 7 persistently fail to observe the strong crossover constraint (see Postal, 1971; Wasow, 1972, 1979) on movement constructions in such questions as:

- (5) *a. who_i does he_j think e_i has a hat
 b. who_i e_i thinks he_j has a hat (p. 111)

Note that (5a) is an acceptable sentence but not with the indexing shown; unlike (5b), (5a) requires that *who* and *he* be disjoint in reference.

Nishigauchi and Roeper's empirical claim, however, has most recently been disputed by McDaniel and McKee (1989), who employed comprehension tasks, and by Crain (1989),⁶ who employed production tasks, and showed that children's questions do indeed obey strong crossover. This suggests that children do know that English questions are movement constructions.

Crain, in addition, found that children exhibited the proper asymmetry between object and subject extraction from tensed embedded clauses. When the *wh*-phrase originates as the object of a tensed embedded clause, the complementizer *that* is optional:

- (6) a. What_i do you think pigs eat e_i ?
 b. What_i do you think that pigs eat e_i ?

⁶ Evidence here is still preliminary since Crain and his colleagues have only just begun to test children under the age of 4;0.

In (6), the *trace* of the moved *wh* is adjacent to the verb which properly governs it, satisfying the ECP,⁷ and the lexical complementizer *that* in (6b) does not interfere with this government relation. However, when the *wh* is extracted from subject position, the complementizer *that* is not permitted as in (7b):

- (7) a. What_i do you think e_i eats pigs?
 *b. What_i do you think that e_i eats pigs?

In (7), the subject is not governed by the verb, but by Infl (the head of S = Infl) and Infl is not a proper governor of the kind required for lexical government under the ECP. Hence the ECP requires the subject to be antecedent governed by its trace in COMP. However, when COMP contains *that*, as in (7b), the *wh*-trace in COMP no longer c-commands and properly governs the subject trace. Thus the subject trace violates the ECP.

Since the ECP governs *wh*-movement but not the binding of *pro* in non-movement constructions, sensitivity to the ECP in English questions would indicate that learners know that this construction involves movement.

In an elicitation task, Crain found that children as young as 2;10 successfully produced grammatical sentences of types (6a) and (7a), less so (6b), but not (7b). This suggests that they do have some knowledge of the subject/object contrast in *wh*-movement questions due to ECP. Crain notes that "although children reliably produce Complementizers where they are obligatory, they choose to delete them when they can. Nevertheless, we

⁷ See Chapter 4 for an explanation of the ECP. See Taraldson (1978), Pesetsky (1982), Kayne (1984), and Chomsky (1986) for discussions of the *that*-trace effect, and its reformulation in terms of the ECP.

were successful in eliciting long-distance questions of both varieties from nearly every child we have studied.(1989:7)." Since these are only preliminary results, it remains to be seen whether (accurate) omission of the complementizer in subject relatives reflects more than a generalized tendency to delete whenever possible, or whether children clearly evidence constructions involving trace.

Some evidence of early knowledge of wh-movement in English questions also comes from L1 studies of pied-piping and preposition stranding. French (1984) tested English-speaking children on their comprehension and production of L1 questions with pied-piping, clearly a movement construction in English, and preposition stranding. She found that as early as age 3, children had acquired both constructions.

As reported above, Labelle (1988) showed that children learning French as their L1 begin learning relatives as non-movement constructions and maintain this hypothesis until age six years. However, they also show clear evidence of movement in questions at a very early stage (between 2-3 years) since they produce pied-piping. This is illustrated in the example reported in Chapter 2, section 2.3.1 and repeated here as (8):

- (8) Sur quoi on pèse?
 (On what one pushes?)
 'On what does one push'?⁸ (page 6)

Thus, there appears to be mounting evidence of +movement as the default in childrens' L1 acquisition of wh-questions, a factor that would seriously weaken the UG hypothesis for L2 learners if this requires that

⁸ Unfortunately, Labelle doesn't indicate they they don't use resumptive pronouns and/or other non-movement structures in question forms.

their initial hypothesis is non-movement in questions. It must be noted, however, that the L1 issue is still being investigated and further research might modify the conclusions drawn here.

This brings us to two more plausible UG explanations for null-prep in L2 questions. Each will be set out along with their implications but I will not attempt to choose between them.

5.2.2 The movement hypothesis: null-prep in core grammar

It is more probable that L2 learners are assuming that questions are movement constructions, which is the correct hypothesis for most prepositional languages. If they assume movement and are guided by UG, L2 learners presumably rely on the parametric options as posited in the previous chapter:

1. +/-P licensing *trace* , where + is marked.
2. P has *morpheme/word boundary*, where word boundary is marked.

Recall from Chapter 4 that these parametric options result in the following movement constructions for relativization of the object of the preposition, from least to most marked within core grammar:

pied-piping - preposition stranding *null-prep⁹

⁹ Pronoun retention (resumptive pronouns) is not listed here because of uncertainty regarding its legitimacy in non-movement constructions, as noted in chapter 4. Even if it is a movement construction, it does not appear to be relevant to this discussion because it is just the trace alternative with phonological realization of trace.

The least marked option is pied-piping which involves -licensing by P (i.e. P does not properly govern a trace).¹⁰ Preposition stranding is highly marked, involving proper government by a strong P (i.e. *P has word boundary*), two marked parametric settings. It was argued in Chapter 4 that null-prep in core grammar is an illegal or unlikely option since it would involve proper government by P which would not be congruent with a weak preposition (*P has morpheme boundary*); it was claimed that a preposition which is syntactically strong enough to properly govern could not be phonologically weak enough to cliticize to its trace.

If L2 learners are hypothesizing null-prep as a movement construction, they would be adopting an illegal (or unlikely) parameter setting and violating UG. There may be two reasons for learners to hypothesize such an option:

1. They have positive evidence from the input of English that the grammar licenses constructions such as:

(9) (In) What year did she graduate?

(10) That was the reason (that) he left.

Superficially like the null-prep in non-movement constructions, these structures are in fact a quite different phenomenon. Several linguists, whose analyses were reviewed in Chapter 4, section 4.3, have shown them to be adverbial "bare NPs", which are idiosyncratic and lexically restricted in English. Thus they are not core constructions at all, but are in the periphery. This means that L2 learners who hypothesize null-prep in

¹⁰ For the last parameter (2, above), it is not clear whether piping constructions are limited to weak prepositions (i.e. *P has morpheme boundary*), which would be the unmarked option. This determination will be left for future analysis and interpretation.

movement questions are doing so by setting core parameters; thus they have made the error of setting core parameters on the basis of peripheral data. Why they should do so, when children learning their L1 do not, would then call for explanation.

2. The occurrence in English of preposition stranding might lead L2 learners to assume null-prep in questions. This could occur if they mistakenly hypothesize that every preposition necessarily has a phonologically weak form, since this is universally the default case. They know that English prepositions are syntactically strong, as evidenced by stranding. Note that this entails that they violate the Subset principle. They know from their input that English prepositions are phonologically strong (stranding) and the Subset Principle would require them to conclude that English prepositions are not also phonologically weak - unless their input shows it. Also note that L2 learners would be ignoring the universal tendency for prepositions to be phonologically and syntactically congruent, either both weak or both strong.

Under either form of this hypothesis, L2 learners are attempting to set their parameters appropriately, but are misled by a marked construction in the input, either a core construction (stranding) or a peripheral construction ("bare NPs"). They end up by assuming an illegal or unlikely setting for core grammar.

It should be noted that even if learners are creating a technically possible grammar, their parameter-setting mechanisms produce the wrong possible grammar relative to the language they are exposed to. Therefore, whether the grammar they have created is possible or not, is not the most important or interesting question. If their grammar is possible but the wrong one, then L2 learners are not doing what L1 learners do; that

is, L2 learners are outside of UG in some way. It may also be that what is missing is not any of the alternative parameter settings; rather, the child knows how to construe the input since her data and grammar is constrained by the Subset Principle, which is not available to the L2 learner. Van Buren (1988:40) presents evidence which suggests that "the subset principle can neither be a universal nor a particular principle of second language acquisition. ... Without this linguistic condition Universal Grammar could never act as the guiding principle for restructuring parametric grammars."

5.2.3 The movement hypothesis: overgeneralization from the periphery

Under this hypothesis, L2 learners are also misled by the "bare NP" data of English. However, they are making a different assumption: they are noticing a peripheral construction and overgeneralizing it to the whole L2 grammar or across too many lexical items.

The suggestion here is that learners are utilizing hypothesis-formation and testing (for rule learning), rather than parameter-setting mechanisms, to create the target grammar. They choose local options as the simplest solution. That is, if UG does not force them into a description about the dependency relationship between piping and stranding, then the absence of the preposition in clause-initial position, for example, could be construed as evidence that the preposition is optional there. Likewise, the absence of a preposition in clause-final position could be interpreted to mean that prepositions are optional there too. Thus, reliance on local options should present these learners with four possibilities: piping, stranding, null-prep, or pronoun retention (where a preposition appears in

both clause-initial and clause-final position). Interestingly, L2 learners do not show evidence of the last option,¹¹ which would suggest a non-movement construction. It is an option, however, that is exhibited by native speakers.

Recall in Chapter 2 (section 2.2.2) that American students choose both PiP and PS within the same sentence. Thus, these speakers are acting like L2 learners in missing the dependency relationship between the two phenomena, creating constructions as shown in Chapter 2 as (20) and repeated here as (11):

- (11) a. The society in which he grew up in
b. The feeling for which he is left with.

Here it is presumed that native speakers choose piping for its +formal feature and also stranding because that is the form they know. Note that these speakers are acquiring a structure after the critical period. Having learned only stranding as children, they are now adding piping to their language (in the form of a base-generated PP), and without parameter settings to guide them any longer, they rely on conscious learning. Thus, these native speakers have assumed an incorrect hypothesis since UG has not provided them with knowledge of the necessary dependency between the two positions of the preposition.

If this is the correct analysis for L2 learners as well, then it can be concluded that the UG hypothesis is false. It is the case that UG permits local options in all sorts of constructions. But such options must be highly

¹¹ It was indicated in Chapter 3 that there was no evidence in the experimental task that L2 learners inserted a preposition in clause-initial as well as clause-final position ("double P").

marked or children would never learn dependency relationships where they do exist. Thus, evidence that L2 learners favor local options constitutes evidence that they aren't relying on UG, or are only guided by basic UG principles in the most general way. It may be that these learners are treating the core grammar and the periphery in the same way. In fact, nobody knows at this time just how the periphery is learned. It may be natural to assume some sort of hypothesis formation, which, for all we know, is not linguistic but general problem solving. And it may be that learners utilize just such problem solving mechanisms to acquire the L2 grammar as, for example, Felix (1986) and Clahsen and Muysken (1986, 1989) argue (see Chapter 2).

5.2.4 Conclusion

It may be concluded that null-prep in the L2 grammar suggests that second language learners do not obey UG in the same way that first language learners do. Though L2 learners may be creating a possible grammar, they are setting parameters in such a way as to hypothesize the wrong grammar for English; alternatively, they are not setting parameters at all, but are formulating peripheral hypotheses to create the L2 grammar. Part of UG, then, seems to be either missing or misapplied.

There is current research which supports such a conclusion. White (1987:242,243) suggests that L2 adults acquiring subject pronouns do so differently from children. She cites Hyams (1987) who proposes that the L1 child retreats from an incorrect (+pro-drop) hypothesis for English by evidence in the L2 of *it* and *there* which trigger the correct parameter-setting (i.e. -pro-drop). On the other hand, White reports that among L2

learners "null expletives are more persistent than null referential pronouns in the grammars of L2 learners ... suggesting that the presence of expletives is not the trigger for change." She concludes that "given their prior knowledge of another language, their greater maturity, already complete cognitive development, etc., they may be able to make use of different positive evidence from that used by the L1 learners". It is suggested, here, that the right evidence is used by adults to create the wrong (null-prep) grammar.

Recall from Chapter 2 that Clahsen and Muysken (1986) showed that children learning German as their native language exhibit a distinct developmental sequence for word order related to the development of inflections. In contrast, adults learning L2 German revealed a different pattern of word order development from that of children, and this pattern had no relationship to the acquisition of German inflections.¹² In a later paper, the researchers conclude that the child's constructions:

...in the various stages of L1 development can be analyzed as possible grammars (in terms of universal constraints)...In contrast to that, adults may come up with linguistic systems which are not consistently defined by a specific option of UG. They can be described, however, in terms of general learning strategies and processing constraints.

(Clahsen and Muysken, 1989:25)

Evidence from Clahsen and Muysken has motivated Bley-Vroman (1986:8) to suggest that adults learn "the individual effects of the parameter piecemeal, as if they were peripheral constructions". Similarly, Hawkins (1987:46) argues that L2 learners of English acquire the dative construction

¹² Clahsen and Muysken's interpretation of their data has been disputed by duPlessis et al., 1987, and countered by Clahsen and Muysken, 1989. The issue is still in dispute and will not be resolved here.

by the "progressive introduction of syntactic features into their grammars" rather than by a parameter-setting mechanism.

Schachter (1988a) summarizes by arguing that there are several reasons to believe that adults do not acquire the L2 as children do the L1. Each of these factors has support from L2 studies:

1. The adult has access to "previous knowledge" (L1) that contributes to interference effects. (See James, 1980.)
2. The adult's cognitive and processing mechanisms are more advanced and have an impact on the way language acquisition is learned, which differs from the way children learn. (See Clahsen and Muysken, 1988)
3. The adult's interlanguage almost never achieves "completeness" (mastery equal to that of the child learning the L1). (See Coppieters, 1987.)
4. Adults "are clearly not equipotential for any natural language" (1988a:225). That is, children seem to have the ability to learn any arbitrary natural language in the same amount of time and with the same degree of effort. An adult from a particular L1, on the other hand, may vary greatly in her ability to learn L2X vs. L2Y. (See Ard and Homberg, 1983.)
5. Fossilization of particular language structures is a characteristic of L2 but not of L1 learning. (See Selinker, 1972.)

5.3 Implications and directions for future research

Many issues have been addressed in this dissertation but many more uncovered. Some questions have been answered and still others only formulated. The following are some suggestions for a program of research which would continue the investigation begun here.

5.4.1 Linguistic research

Since null-prep has emerged as a structure in several of the world's languages, it needs to be further studied, both typologically and with respect to its deeper syntactic analysis. Continued cross-linguistic exploration of the null-prep phenomenon will lead to a better characterization of the groups of languages where it appears. Such investigation will tell us more about the conditions under which null-prep appears, and how these can be defined typologically.

That will lead to support for or disconfirmation of the analyses presented above concerning the principles and parameters involved in the null-prep construction. Importantly, further investigation will show whether a single analysis can be posited across all null-prep languages, both prepositional and postpositional, or whether there will be groups of null-prep languages, each having a distinct syntactic analysis. Research such as this will help determine the psychologically real parameters controlling relative clauses in the world's languages and their related markedness values.

A cross-linguistic study of the principle of recoverability of deletion would also be of interest. The variability with respect to the recoverability of a null preposition suggests that this principle needs to be redefined and clarified, as well as renamed!

Another major issue to be further investigated concerns the viability of the non-movement analysis for the null-prep construction. This can be examined by:

1. Testing for subjacency in all null-prep languages. Further, subjacency should be examined in null-prep vs. alternate pronoun retention constructions to be sure null-prep exhibits the same effects as the latter construction in all languages tested.¹³
2. Testing for crossover effects and parasitic gaps in null-prep constructions cross-linguistically.
3. Continuing the search for null-prep in questions. Null-prep in questions could mean that a new analysis is warranted.

The following suggestions relate to specific or related issues. The major questions, here, primarily concern the status of the object of null-prep as a variable, and the relationship of null-prep in relatives to prepositional congruence, clitics, and empty objects in matrix clauses; each of these has implications for the analysis posited in this dissertation. Additional questions relate to preposition stranding, since an analysis of this construction bears on the parameters posited for null-prep as well.

4. Examine other stranding languages, in particular, for evidence of null-prep. Null-prep would not be expected in these languages where prepositions are syntactically and phonologically strong enough to remain overt and properly govern *trace*. If null-prep were found in the movement constructions of such languages, the movement analysis would, of course, be questioned; also questioned would be the claim that the phonological and syntactic strength of prepositions must be congruent (i.e. null-prep in such constructions would mean that prepositions could be syntactically strong

¹³ Labelle (1988a) showed a single example where null-prep obeyed subjacency while a related pronoun retention example violated it. It will be important to examine the contrast she presents very carefully, since it suggests a problem for the non-movement analysis offered here.

enough to properly govern and phonologically weak enough to cliticize to *trace*).

5. Test Germanic languages for evidence of null-prep. Since these languages do not have clitics and have wh-movement, the presence of null-prep would not be predicted.

6. Examine languages with non-movement relatives, with and without clitics, to investigate the relationship between the presence of clitics and null-prep cross-linguistically; this is in order to evaluate support for analyzing null-prep as a null-prepositional clitic.

7. Determine whether Sells' (1981) distinction between intrusive and resumptive pronouns is relevant to constructions which allow null-prep as an alternative. This would help determine whether the object of null-prep should be analyzed as operator-bound or unbound.

8. Compare null-prep languages which do/do not allow null objects in main clauses. This too would help clarify the properties of the empty object of a null-prep.

9. Compare languages which permit null-prep in free relatives and do/do not allow null-prep in headed relatives. Distinct analyses may be warranted between the two language groups and/or within languages for headed vs. free relatives, as Larson suggests for English "bare NPs".

10. Reexamine Hornstein and Weinberg's (1981) view of "reanalysis" which offers a quite different account of preposition stranding than that assumed here. There appear to be many counter-examples to their data which suggest that a different analysis is warranted.

5.4.2 Acquisition research

A major implication of this study is the importance of doing detailed linguistic analyses of the structures that are tested in second language research. Researchers need to know the target grammar, as well as the target language before any serious conclusions can be drawn. Such analyses must investigate the nature of these structures in the L2 input, and in other possible languages, and in the language created by the L2 learners.

For reasons given in earlier sections, it is crucial to our understanding of the L2 null-prep phenomenon, to know: (a) whether L1 learners make comparable errors, and if so how they recover from them; (b) whether null-prep is exhibited among L2 learners who have not yet reached the critical period. Differences between pre-critical period learners and L1 learners would strongly suggest that the crucial factors involve L1 vs. L2 acquisition, and not child vs. adult acquisition; on the other hand, L1 and child L2 similarities along with child L2 and adult L2 differences would favor a critical period hypothesis; (c) whether L2 learners of languages other than English also exhibit null-prep.

The most interesting and crucial tests, then, include the following:.

1. Test for null-prep in L1 acquisition of languages with only PiP, with PiP/PS, and with neither. (Similar tests must be conducted among L2 learners, as suggested below). Optimally, these should be both cross-sectional as well as longitudinal studies and will be the crucial tests for L1 vs. L2 acquisition, as noted above. It will also be important to test L1

learners of English for acquisition of "bare NPs"; this will further our knowledge about how the periphery is learned.

2. Test for null-prep in L2 acquisition of English among children. Again, these tests should be both cross-sectional and longitudinal. Differences between child and adult L2 acquisition will further strengthen the hypothesis that mature cognitive and processing strategies rather than UG are responsible for adult language learning strategies.
3. Test L2 subjects learning a non-stranding language to see if they exhibit null-prep. If so, then PS (i.e. core data) is not what is propelling them to null-prep. Analyze by L1 to see if there are differential results which might support a UG transfer hypothesis (where learners start with their L1 parameter settings and reset to the L2).
4. Test L2 learners of a stranding language which does not exhibit "bare NPs". This would help evaluate this construction as the relevant misleading input.

Other relevant issues should also be examined:

5. Test L2 learners extensively for subjacency violations in their null-prep constructions. Subjacency 'violations' support a non-movement hypothesis. The same subject must be tested on subjacency in PiP, PS, and null-prep constructions to see if violations are accepted for null-prep (=non-movement) and not the others. Also it must be determined whether relative clauses obey subjacency as well as questions. This is to evaluate whether the L2 grammar shows movement or non-movement for these constructions.
6. Test L2 subjects for evidence of pronoun retention in the acquisition of PiP/PS relatives. Positive results would strongly support UG markedness

predictions since the analysis posited in Chapter 4 suggests that pronoun retention is the least marked option in non-movement relative clauses.

7. Test L2 subjects for acceptance of the preposition at the front and the end of the same clause. This would help evaluate the hypothesis that they are relying on local options (see previous section).

8. In order to better understand the constraints under which null-prep occurs in the L2, it would be useful to replicate and extend the experiment reported here, testing further for null-prep:

(a) in constructions where there is a long vs. a short gap between the empty object and the complementizer/relative pronoun.

(b) in adjuncts vs. argument constructions.¹⁴

(c) with +/-human relative clause heads (who = non-discourse-linked vs. which = discourse-linked).

(d) with +/-full NPs (which house vs. which).

(e) ranked with acceptance of PiP/PS - optionality/preference of null-prep.¹⁵

(f) with a wider range of V+P combinations.

(g) with VC vs. CV prepositions, to test for differences related to phonological salience.

(h) with semantically-heavy vs. semantically-empty prepositions, to test for differences related to semantic salience.

9. All further studies of null-prep should employ different kinds of tests, both receptive and productive tasks. This is obviously to ensure that null-prep is not an artifact of grammaticality judgements alone. If null-prep

¹⁴ Here it would also be interesting to test advanced learners of English to see how they acquire "bare NPs"

¹⁵ This was tested in a pilot study but should be replicated with a larger number of subjects under more controlled conditions.

appears only on GJ tasks, the implications of this for L1 and L2 research must be carefully examined.

10. Test for "other languages studied" as a dependent variable on all tests to confirm the findings in Chapter 3.

11. Test differences in null-prep responses when V+P are one vs. two words in the L1; that is, if the equivalent of, for example, *think about* is a single verb in Spanish, but a verb + preposition in French, one might anticipate a Spanish L2 learner of English exhibiting null-prep, but not a French L2 learner of English.¹⁶ This would further investigate the role of L1 transfer vs. general learning strategies/UG in L2 acquisition.

12. Test use of confidence rating scales in increasingly difficult tasks. If significant differences are not evidenced, such scales are ineffective for use in L2 acquisition tasks.

Obviously it is not practical to embark on all of these investigations at once. The ones I consider of most central interest to acquisition researchers are those that will test whether L1 learners of English make comparable mistakes to the L2s studied here and if so, how they recover from them. It will be equally important to test L2 learners before the critical period for evidence of null-prep. Such an investigation will help distinguish between factors involving the critical period, and hence UG, and those related to L1 vs. L2 acquisition.

Extending the scope of inquiry into the null-prep phenomenon will help contribute to linguistic theory as well as add to our knowledge about the nature of language acquisition.

¹⁶ The nine V+P combinations used in the experimental task were examined for this factor and it is believed that all had V+P equivalents in most of the romance languages. However, this would have to be more carefully scrutinized in subsequent experimental research.

APPENDIX A

Target Sentences (incorrect):

(talk about, complain about, worry about)

1. The two friends talked the interesting movie last night.
Which movie did the two friends talk last night?
This is the movie (which, that, Ø) the two friends talked last night.
2. The biology students complained the difficult test last week.
Which test did the biology students complain last week?
Here is the test (which, that, Ø) the biology students complained last week.
3. The old man worried his medical insurance last weekend.
Which insurance did the old man worry last weekend?
This is the insurance (which, that, Ø) the old man worried last weekend.

(wait for, apply for, pay for)

4. The young girl waited for the school bus this morning.
Which bus did the young girl wait this morning?
This is the bus (which, that, Ø) the young girl waited this morning.
5. The delivery boy applied a new job last week.
Which job did the delivery boy apply last week?
This is the job (which, that, Ø) the delivery boy applied last week.
6. The rich man paid the expensive jewels yesterday morning.
Which gift did the rich man pay yesterday morning?
Those are the jewels (which, that, Ø) the rich man paid yesterday morning.

(dance with, play with, live with)

7. The silly clown danced the big doll last night.
Which doll did the silly clown dance last night?
Here is the doll (which, that, Ø) the silly clown danced last night.
8. The little boy played the teddy bear yesterday.
Which teddy bear did the little boy play yesterday?
Here is the teddy bear (which, that, Ø) the little boy played yesterday.

9. The young man lived a Japanese family two years ago.
Which family did the young man live two years ago?
This is the family (which, that, Ø) the young man lived two years ago.

Filler sentences (correct):

(look at, laugh at, work in, read in, sit on, knock on)

Pied-Piping:

1. The children were laughing at the funny pictures this morning.
At which pictures were the children laughing this morning?
Those are the pictures at which the children were laughing this morning.
2. The secretary worked in a busy office last year.
In which office did the secretary work last year?
This is the office in which the secretary worked last year.
3. The girls sat on the park bench yesterday afternoon.
On which bench did the girls sit yesterday afternoon?
This is the bench on which the girls sat yesterday afternoon.

Preposition Stranding:

4. The tourists are looking at the tall buildings right now.
Which buildings are the tourists looking at right now?
Those are the buildings (which, that, Ø) the tourists are looking at right now.
5. The boys were reading in the school library this week.
Which library were the boys reading in this week?
Here is the library (which, that, Ø) the boys were reading in this week.
6. A stranger was knocking on the kitchen door this morning.
Which door was a stranger knocking on this morning?
Here is the door (which, that, Ø) a stranger was knocking on this morning.

Filler sentences (incorrect):

1. The girls is watching a television show this evening.
What the girls watch on television yesterday evening?
Did the girls watched a television show last night?

2. His parents is buying a new car today.
Which car my parents buy tomorrow?
Did my parents bought a new car yesterday?
3. The nurse are eating a sandwich in the cafeteria.
What the nurse eat in the cafeteria last night?
Did the nurse ate a sandwich in the cafeteria last night?
4. The porter are carrying the heavy suitcase to the car.
What the porter carry to the car yesterday morning?
Did the porter carried the heavy suitcase to the car yesterday morning?
5. The girls is singing holiday songs in the school play.
What the girls sing in the school play next Saturday?
Did the girls sang holiday songs in the school play?
6. The boy are mailing the letters at the post office.
What the boy mail at the post office tomorrow morning?
Did the boy mailed a letter at the post office yesterday?

11. Which buildings are the tourists looking at right now? ☐ good ☐ bad

very sure____/____/____/____/____very unsure

12. His parents is buying a new car today. ☐ good ☐ bad

very sure____/____/____/____/____very unsure

13. Which bus did the young girl wait this morning? ☐ good ☐ bad

very sure____/____/____/____/____very unsure

14. Here is the library which the boys were reading in this week. ☐ good
☐ bad

very sure____/____/____/____/____very unsure

15. What the nurse eat in the cafeteria yesterday morning? ☐ good
☐ bad

very sure____/____/____/____/____very unsure

16. This is the doll which the silly clown danced last night. ☐ good ☐ bad

very sure____/____/____/____/____very unsure

17. The secretary worked in a busy office last year. ☐ good ☐ bad

very sure____/____/____/____/____very unsure

18. Did the porter carried the heavy suitcases to the car? ☐ good ☐ bad

very sure____/____/____/____/____very unsure

19. The biology students complained the difficult test last week. ☐ good
☐ bad

very sure____/____/____/____/____very unsure

20. What the girls sing in the school play next Saturday ? ☐ good ☐ bad

very sure____/____/____/____/____very unsure

21. This is the door which a stranger was knocking on this morning.
☐ good ☐ bad

very sure____/____/____/____/____very unsure

22. Which job did the delivery boy apply last week? ☐ good ☐ bad

very sure____/____/____/____/____very unsure

23. Did the boy mailed the letters at the post office? ☐ good ☐ bad
 very sure____/____/____/____/____very unsure
24. The girls sat on the park bench yesterday afternoon. ☐ good ☐ bad
 very sure____/____/____/____/____very unsure
25. Here is the teddy bear that the little boy played yesterday. ☐ good
☐ bad
 very sure____/____/____/____/____very unsure
26. At which pictures were the children laughing this morning? ☐ good
☐ bad
 very sure____/____/____/____/____very unsure
27. The old man worried his medical insurance last weekend. ☐ good
☐ bad
 very sure____/____/____/____/____very unsure
28. What the girls watch on television last Sunday evening? ☐ good
☐ bad
 very sure____/____/____/____/____very unsure
29. Which jewels did the rich man pay yesterday morning? ☐ good ☐ bad
 very sure____/____/____/____/____very unsure
30. Those are the buildings which the tourists are looking at right now. ☐ good ☐ bad
 very sure____/____/____/____/____very unsure
31. This is the family the young man lived two years ago. ☐ good ☐ bad
 very sure____/____/____/____/____very unsure
32. Which car his parents buy tomorrow? ☐ good ☐ bad
 very sure____/____/____/____/____very unsure
33. Which movie did the two friends talk last night? ☐ good ☐ bad
 very sure____/____/____/____/____very unsure
34. The boys were reading in the school library this week. ☐ good ☐ bad
 very sure____/____/____/____/____very unsure

35. This is the bus which the young girl waited this morning. ☐ good
☐ bad
 very sure____/____/____/____very unsure
36. What the nurse eat in the cafeteria later today? ☐ good ☐ bad
 very sure____/____/____/____very unsure
37. The silly clown danced the big doll last night. ☐ good ☐ bad
 very sure____/____/____/____very unsure
38. This is the office in which the secretary worked last year. ☐ good
☐ bad
 very sure____/____/____/____very unsure
39. What the porter carry to the car yesterday? ☐ good ☐ bad
 very sure____/____/____/____very unsure
40. Which test did the biology students complain last week. ☐ good
☐ bad
 very sure____/____/____/____very unsure
41. The girls is singing holiday songs in the school play. ☐ good ☐ bad
 very sure____/____/____/____very unsure
42. Which door was a stranger knocking on this morning? ☐ good ☐ bad
 very sure____/____/____/____very unsure
43. This is the job that the delivery boy applied last week. ☐ good ☐ bad
 very sure____/____/____/____very unsure
44. What the boy mail at the post office tomorrow morning? ☐ good
☐ bad
 very sure____/____/____/____very unsure
45. The little boy played the teddy bear yesterday. ☐ good ☐ bad
 very sure____/____/____/____very unsure
46. Did the girls watched a television program yesterday? ☐ good ☐ bad
 very sure____/____/____/____very unsure

47. This is the insurance the old man worried last weekend. ☐ good
☐ bad
 very sure___/___/___/___/___very unsure
48. On which bench did the girls sit yesterday afternoon? ☐ good ☐ bad
 very sure___/___/___/___/___very unsure
49. The rich man paid the expensive jewels yesterday morning. ☐ good
☐ bad
 very sure___/___/___/___/___very unsure
50. Did his parents bought a new car yesterday? ☐ good ☐ bad
 very sure___/___/___/___/___very unsure
51. Those are the pictures at which the children were laughing this morning.
☐ good ☐ bad
 very sure___/___/___/___/___very unsure
52. The young man lived a Japanese family two years ago. ☐ good ☐ bad
 very sure___/___/___/___/___very unsure
53. Did the nurse ate a sandwich in the cafeteria yesterday? ☐ good
☐ bad
 very sure___/___/___/___/___very unsure
54. This is the movie which the two friends talked last night. ☐ good
☐ bad
 very sure___/___/___/___/___very unsure
55. The tourists are looking at the tall buildings right now. ☐ good ☐ bad
 very sure___/___/___/___/___very unsure
56. The young girl waited the school bus this morning. ☐ good ☐ bad
 very sure___/___/___/___/___very unsure
57. Which library were the boys reading in this week? ☐ good ☐ bad
 very sure___/___/___/___/___very unsure
58. Which doll did the silly clown dance last night? ☐ good ☐ bad
 very sure___/___/___/___/___very unsure

59. The porter are carrying the heavy suitcases to the car. ☐ good ☐ bad
 very sure____/____/____/____/____very unsure
60. Here is the test that the biology students complained last week. ☐ good
☐ bad
 very sure____/____/____/____/____very unsure
61. In which office did the secretary work last year? ☐ good ☐ bad
 very sure____/____/____/____/____very unsure
62. The delivery boy applied a new job last week. ☐ good ☐ bad
 very sure____/____/____/____/____very unsure
63. Did the girls sang holiday songs in the school play? ☐ good ☐ bad
 very sure____/____/____/____/____very unsure
64. Which teddy bear did the little boy play yesterday? ☐ good ☐ bad
 very sure____/____/____/____/____very unsure
65. A stranger was knocking on the kitchen door this morning. ☐ good
☐ bad
 very sure____/____/____/____/____very unsure
66. Which insurance did the old man worry last weekend? ☐ good
☐ bad
 very sure____/____/____/____/____very unsure
67. The boy are mailing the letter at the post office. ☐ good ☐ bad
 very sure____/____/____/____/____very unsure
68. Those are the jewels the rich man paid yesterday morning. ☐ good
☐ bad
 very sure____/____/____/____/____very unsure
69. This is the bench on which the girls sat yesterday afternoon. ☐ good
☐ bad
 very sure____/____/____/____/____very unsure
70. Which family did the young man live two years ago? ☐ good ☐ bad
 very sure____/____/____/____/____very unsure

APPENDIX C

Types of errors and corrections coded

IN DECLARATIVES:

- I. Sentence judged *good* (no correction made)
- II. Sentence judged *bad* ,
 - 1. with wrong correction
 - 2. with insertion of a preposition (=accurate subcategorization)
 - 3. and corrected in another way (no insertion of a preposition)

IN QUESTIONS:

- I. Sentence judged *good* (no correction made)
- II. Sentence judged *bad*,
 - 1. with wrong correction
 - 2. with insertion of a preposition and an overt pronoun (=pronoun retention)
 - 3. with insertion of a preposition (=pied-piping)
 - 4. with insertion of a preposition (=preposition stranding)
 - 5. and corrected in another way (no insertion of a preposition)

IN RELATIVE CLAUSES:

- I. Sentence judged *good* (no correction made)
- II. Sentence judged *bad*,
 - 1. with wrong correction
 - 2. with insertion of a preposition and an overt pronoun (=pronoun retention)
 - 3. with insertion of a preposition (=preposition stranding)
 - 4. and corrected in another way (no insertion of a preposition)

Which:

- 5. with insertion of a fronted preposition (=pied-piping)
- 6. with change of relativizer to **That** and insertion of a preposition (=preposition stranding)

That:

8. with change of relativizer to Which and insertion of a fronted preposition (=pied-piping)
9. with change of relativizer to Which and insertion of a preposition (=preposition stranding)

Ø:

10. with insertion of relativizer (Which) and insertion of a fronted preposition (=pied-piping)
11. with insertion of relativizer (Which or That) and insertion of a preposition (=preposition stranding)
12. with insertion of relativizer (Which or That) and no insertion of a preposition

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