INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI

A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor MI 48106-1346 USA
313/761-4700 800/521-0600

ACQUISITION OF COMPARATIVE FORMS IN ENGLISH

by

JANINE GRAZIANO-KING

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

1999

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.

April 28, 1999
Date

Helen S. Cairns
Chair of Examining Committee

April 28, 1999
Date

Charles E. Cairns
Executive Officer

Janet Dean Fodor

Supervisory Committee

THE CITY UNIVERSITY OF NEW YORK

Abstract

ACQUISITION OF COMPARATIVE FORMS IN ENGLISH

by

Janine Graziano-King

Adviser: Professor Helen Smith Cairns

To what extent is lexical acquisition rule-governed? The research reported here addresses this question by investigating a particular case of lexical learning; i.e., the acquisition of the two forms of the adjectival comparative in English: the suffixed (*Adj+er*) and the periphrastic (*more + Adj*). The grammars of adults and of children (at ages 4 and 7) were studied by eliciting grammaticality judgments of comparative adjectives of both types; a small corpus based study was also conducted.

Experiments used real and novel adjectives to discover if the distribution of the comparative forms was rule-governed. Adjectives of various morphophonological types were tested, and, in the adult experiments, frequency and gradability were manipulated for real adjectives. While morphophonological type was not a good predictor of

adults' comparative type preferences, frequency and gradability, for some adjective types, were. These effects were not cumulative and indicate that comparative type preference is a function of input frequency of the comparative form of the adjective, suggesting that suffixed comparatives are lexically listed and not rule-generated. Only disyllabic adjectives ending in *-y* were consistently preferred in the suffixed form, regardless of frequency and regardless of whether they were real or novel forms. However, the bimorphemic nature of these Y disyllabics suggests that comparative suffixation is a case of listing morpheme co-occurrences; i.e., the preference for the suffixed comparative for Y disyllabics has its source in listing the co-occurrence of *-y* and *-er*. Extending this analysis to include free morphemes can account for other suffixed comparative preferences indicated by the data.

In this study, the periphrastic emerges as a default and is characterized as an instance of *more support* that obtains where a listed lexical comparative is unavailable to check an abstract Deg-feature in the extended functional adjectival projection. Thus, when a suffixed comparative is listed, *more support* is blocked.

Both spontaneous and experimental child data are compatible with this account. The course of acquisition suggested by the data is one where children must first identify *-er* as a morpheme, then recognize its ability to check the Deg-feature, and finally learn the morphemes with which it co-occurs.

Acknowledgments

The completion of this dissertation marks the end of my doctoral studies although, as my adviser and friend, Helen Smith Cairns, often told me, a dissertation is not an end, but a beginning. I think she said that to calm me down. Well, Helen, right now, after seven years, "end" sounds pretty damn good! But whether it's an end or a beginning, I'd like to thank a number of people who have been influential in helping me get here.

I am still amazed by the energy, support, and direction I received from my dissertation committee. I could not have dreamed up a more perfect adviser than Helen Smith Cairns. Helen is the teacher I hope to someday become. I have never met anyone who possesses her ability to both nurture and empower a student at the same time. Helen shared her time, her knowledge and her sense of humor with me. Her patience was endless, she kept me grounded (no easy task!), and she never forgot that there was another person at the end of that relentless stream of drafts. Most of all, she trusted me, and it is her trust that gives me the confidence to take that final step from being a graduate student to being a linguist. She was right. This is a beginning.

I thank Janet Dean Fodor, who first intrigued me with the puzzle of learnability. Her passion pushed me to places I didn't think I wanted to go. Now I can't imagine never having gone. Also, on behalf of myself and all the statistically challenged, I'd like to thank Di Bradley for sharing her statistical expertise and for the incredible patience she displayed while doing so.

I'd also like to thank the faculty, staff and my fellow students at the Graduate School, who were always there to answer questions and offer advice and support. A few people, however, deserve special mention. With all of his responsibilities as Executive Officer, Chuck Cairns was never too busy to stop to answer a question, or ask how things were going, or share a joke. He is a very special person. I benefited greatly from conversations on minimalism with both Marcel den Dikken, who was also kind enough to read and comment on a draft of the final chapter, and Erich Groat. Michel DeGraff, while doing postdoctoral work at the Graduate School, gave me much early encouragement. And I would be remiss if I failed to thank Judith Tucker, who made life so easy my first six years at the Graduate School, and Marilyn Mercado, who has been so helpful this last year.

One particular fellow student stands apart. Fran Gulinello and I survived graduate school together. Although I probably drove her crazy, she kept me sane. She was always there: at school, in Boston, in Illinois, in spirit. We have argued about linguistics, stressed over work, and philosophized about life. I am grateful for her friendship and for her help in all matters phonological!

A number of linguists and researchers, whom I've never even met, were kind enough to engage in email conversations and either recommend or send copies of relevant work. I'd like to thank Mark Aronoff, Ginny Gathercole, Aleka Blackwell, Roberto Zamparelli, Michael Maratsos and Dan Slobin.

There would be no data and therefore, no dissertation, if it weren't for the subjects. Many thanks to Arlene Figaro and the staff of Redeemer St. John Nursery School, and Lenore Rappaport and the staff of Bayside Nursery School for allowing me to recruit and interview their students. Many thanks also to all the parents of the child subjects who gave permission for their children to participate in this study, and to the children themselves. Special thanks go out to Joanna Kamouh, Donna Guy and the girls of Troop 097. (I'm still eating Girl Scout Cookies!) I'd also like to thank the students of Queens College who participated in the adult experiments.

The support I received in my graduate studies is only half of the story. Life doesn't stand still while you're in graduate school and over the course of seven years, many things happen - people move in and out of your life, relationships change, babies become buddies. As I look back on the past seven years, I realize how fortunate and blessed I am to have the support, encouragement, friendship, and love of many wonderful people without whom it would not have been possible to pursue a doctoral degree.

I'd like to thank a number of friends who helped out in ways that ranged from proofreading, to child care, to just letting me vent. In particular many thanks to Helen Pascale (who really went above and beyond the call of duty) Susan Gabriel, Jane Cascone, Elizabeth Kamuouh, Fran Wiig, Carolyn Kelly, Betty Giugliano, Sharon Kiuhara, and Denise Smyth. I'd also like to thank my friends and colleagues at Queens College and at Teachers College who always had words of encouragement, and Ho-Ping Feng for all of her help with the details.

Most of all, I'd like to thank my family - on both sides of the hyphen! They all showed a great deal of support and forgave me when work kept me away from family get-togethers and celebrations. My Mom and Dad deserve special mention. From the time I was small, they encouraged me to become a doctor. (Somehow, though, I don't think that this was what they had in mind!) I appreciate the sacrifices they made so that I could attend schools that they believed would give me a strong foundation for higher education. And doctoral study would have been out of the question if I hadn't been able to depend on them to take care of my son while I went to this meeting or that class, or worked on this draft or that revision. I am forever grateful to them.

I'd like to thank my husband, Skip, who had decided that I should go back to school before I had. No matter how tough it got, and many times it was no party, he never wavered in his support. But then again, he is a King, and so am I, as he reminded me numerous times when I considered (briefly) just kicking it in. I'd like to thank him for giving me the physical and mental space I needed, and for never complaining about trying to get to sleep in the glare of a computer screen.

Last, but certainly not least, I'd like to thank my son, Jake. When I decided to go back to school, he was too small have any say about it, although it was a decision that affected him greatly. He has had to put up with a mom who was often not present, even when I was in the same room with him. But he rarely complained. I thank him for that, for being a great little research assistant, and for being the best reason I can think of for getting up every morning. OK, Jake, now I'm done.

Table of Contents

List of Tables

Chapter 1: Introduction

Learning a first language requires developing two kinds of competence, linguistic and communicative. By linguistic competence, we refer to the mental grammar that generates all and only the sentences of the target language. Communicative competence refers to knowing how to use that language via structured discourse in a variety of meaningful and social contexts. This dissertation focuses on the child's developing linguistic competence as it is exemplified in the acquisition of the forms of the English comparative construction.[1]

All normally developing children with sufficient exposure to a natural language will learn that language. Both the developing child and the linguistic input he or she receives are contributing factors in language acquisition. What needs to be established in a theory of language acquisition is the extent to which each contributes to acquisition and how the two interact.

An account of language acquisition should begin with a consideration of the final product, the adult grammar. It is important to establish the adult grammar since it represents the endpoint or target of the acquisition process. In relation to the adult grammar, child grammars at various stages can be thought of as approximations that represent points on a continuum that ends with the target. It is also necessary to describe the developing child grammar. Similarities and differences between the adult and child grammars can then be studied and hypotheses can be made with respect to how acquisition proceeds.

The acquisition of the English adjectival comparative construction is particularly interesting from a number of perspectives. Setting aside instances of suppletion (e.g., *good-better; bad-worse*), there are two ways the comparative may be formed. One way is to attach the suffix *-er* to the base adjective and the other is to insert the word *more* before it. It is generally assumed that these two possibilities stand in complementary distribution; that is, adjectives generally form the comparative one way or the other, but not both.[2] Therefore, in addition to learning the two ways of forming the comparative that are available in the grammar of English, the language learner is also faced with the task of learning which adjectives do it synthetically, that is by suffixation, and which analytically, that is by the insertion of *more*. If the comparative distribution is systematic, learning could be hastened by the child's construction of a grammatical rule. If not, we would have to assume that comparative forms are learned conservatively; i.e., item by item as encountered in the input.

The first task, then, is to attempt to identify the presence of systematicity in the distribution of the comparative forms. However, with respect to this distribution, the language is changing. There appears to be a move away from the synthetic and toward the analytic (sometimes called *periphrastic*) comparative. Perhaps as a consequence of this state of flux, there is no simple generalization that captures this distribution.

Therefore, learners cannot be adopting a single simple rule. Learning is further complicated by the fact that although more English adjectives are claimed to form the comparative analytically, those that form the comparative synthetically are of extremely high frequency, thereby

possibly skewing the overall picture for the child language learner.

The goals of this dissertation are to consider these factors and the degree to which they affect the child's hypotheses about the target language, and to give an account of the acquisition process for this particular construction as an instance of lexical learning. In recent years, much research has investigated the role of lexical rules in the acquisition of lexical items. The research presented here has implications for a more general theory of language acquisition.

Chapter 2 traces previous research on lexical acquisition within the framework of learnability issues. The comparative construction is discussed from a crosslinguistic and historical perspective in Chapter 3. Chapter 4 reports an attempt to establish the adult distribution of these forms and identify the variables that influence it, via three experiments that elicit adult grammaticality judgments and two follow-up studies. Literature that focuses on children and the comparative construction is reviewed in Chapter 5. Chapter 6 reports two experiments that seek to establish the child grammar at two points in time, at age 4 and age 7. In Chapter 7, the adult and child grammars are compared and a proposal regarding the nature of the acquisition process is presented.

Chapter 1: NOTES

1. The term *comparative construction* can be used to denote a number of phrases that express the notion of *degree*. These may be adjectival, nominal or adverbial as represented by 1 through 3, respectively:

   1. Bob is taller than Lisa.
   2. Janet read more books than Sue.
   3. Ann works harder than Karen.

Of interest here are the adjectival comparative constructions, represented by (1); it is this type of construction that will be referred to when the terms *comparative* and *comparative construction* are used.

2. However, Frank (1972) discusses particular adjectives for which she claims both options are available she and additionally states that even monosyllabic adjectives, which are always claimed to have suffixed comparatives, may, under certain circumstances, form the comparative with *more*. Lakoff (1972) claims that all adjectives have the *more + Adj* option available. This issue will be addressed in forthcoming chapters.

Chapter 2: Lexical Acquisition: Learnability Considerations

2.1. Introduction

As noted by Grimshaw (1994), "...in the earlier days of generative grammar, the lexicon was often defined as a collection of idiosyncratic information...what was unpredictable and unprincipled, and what therefore must be learned about a language" (p. 411). For a theory of lexical acquisition, this view entailed item-by-item conservative learning. However, regularities of various kinds have been recognized in the lexicon and have been captured by linguists in the form of lexical rules. If such rules underlie production for adults, then they must be acquired by children. If children are learning rules, they are necessarily not dependent on strict conservative learning.

2.2. Conservative vs. Rule-Based Learning

Early work by Berko (1958) demonstrated that children do postulate lexical rules as evidenced by their ability to affix inflectional morphemes to novel[1] forms. This research has been taken to suggest that when children need an inflected form for a word they already know, but have not yet witnessed the inflected form in the input, they can provide the needed form via lexical rule.[2] For example, if a child has observed that past tense verbs in English overwhelmingly end in [d] (subject to allomorphic constraints), he or she can postulate a rule *past = V + [d]*, and then apply this in production. Likewise, children could use the rule to analyze new regular past tense verbs in their input.

So, having heard *jog*, the child can produce the past form *jogged* before witnessing it in the input. Of course, not all English verbs form the past tense this way; that is, the generalization captured by the rule above is only a partial generalization, and applying the rule would lead to overgenerated forms such as *eated* and *goed*. It is an important fact about natural languages that most lexical generalizations are only partial generalizations, so that any lexical rule applied productively would result in some overgenerated forms, which must be expunged from the output by constraining application of the rule. This presents a learnability problem for a rule-based theory of lexical acquisition in light of the fact that first language acquisition proceeds in the absence of direct negative evidence.

Addressing this problem, Baker (1979) distinguished between the application of rules whose exceptions are "benign" and the application of those whose exceptions are "embarrassing". Baker suggested that in cases such as the formation of the past tense, the occurrence of the correct form in the input is enough to drive out an overgenerated form. This type of account assumes a uniqueness principle which entails that only one form expressing a given semantic notion may exist in the language. Therefore, a form generated by rule cannot coexist with an irregular conventional form that expresses the same semantic notion. Exposure to the irregular form preempts the application of the rule in the child's lexicon.[3] So, for example, once sufficiently exposed to instances of *ate* in the input, the child no longer generates *eated*. According to Baker, *ate* is a "benign" exception and poses no problem because positive evidence of its existence is enough to eradicate the rule-generated form. In situations such as this, where a uniqueness principle can be invoked to account for the learning of limits on generalizations, a rule-based account of acquisition is plausible.

However, Baker noted that exceptions to some other lexical rules are "embarrassing" in that positive evidence will not serve to drive out overgenerated forms. Consider, for example, the dative alternation illustrated in (2.1) below:

2.1. a. John gave the book to Mary.
b. John gave Mary the book.
c. John donated the painting to the museum.
d. *John donated the museum the painting.

Based on pairs such as (a) and (b), a child might posit a rule *V* NP_1 *to* NP_2 ↔ *V* NP_2 NP_1. But such a rule when applied to (c) would generate the ungrammatical (d). Note that the presence of (c) in the learner's input will not drive out (d) since, due to the coexistence of (a) and (b) no uniqueness principle can be operant. The same argument can be made when considering alternations such as the locative, passive and causative alternations exemplified in (2.2) through (2.4) respectively:

2.2. a. Bill loaded hay onto the wagon.
b. Bill loaded the wagon with hay.
c. Bill threw boxes onto the wagon.
d. *Bill threw the wagon with boxes.

2.3. a. Andy hit Ben.
b. Ben was hit by Andy.
c. Andy resembled Ben.
d. *Ben was resembled by Andy.

2.4. a. The carriage rolled down the hill.
b. Lisa rolled the carriage down the hill.
c. The baby cried all morning.
d. *Lisa cried the baby all morning.

In each case, (2.1) through (2.4), the coexistence of (a) and (b) shows that the rule is optional for a given verb; that is, the presence of one form does not drive out the other in the same way that the presence of *ate* would drive out *eated*. However, the contrast in grammaticality between (b) and (d) shows that the rule cannot be applied to all verbs. As Baker pointed out, given that the rule is optional (that is, in many cases the

grammar generates both forms), there is no positive evidence that will serve to drive out (d) (an overgenerated form) in each case. In such cases, exceptions are "embarrassing" in that positive evidence offers no solution to the problem of overgeneration. Baker concluded that the absence of direct negative evidence in the child's input precludes rule-based learning of what he called *optional rules*.

The observation that there would be no way for a child to retreat from the overgeneralization of an optional rule prompted Baker to reject rule-based learning for optional rules. This led him to predict that, in the case of optional rules, children would not produce overgenerated forms. However, over the years, it has been observed in elicited and spontaneous child production data that children do produce forms that appear to result from the overgeneralization of optional rules (Pinker, 1984, 1989). These observations have led to what has been termed "Baker's Paradox" and subsequent research in lexical acquisition involving generalizations that can be characterized as optional rules has been challenged to find a solution to that paradox.

2.3. Accounting for Overgeneration

A number of researchers have investigated whether or not lexical rules are posited and utilized by child language learners. While some overgeneration is always evident in child production data, researchers report differences with respect to how frequently it occurs and, as a result, account for it by different mechanisms.

2.3.1. Degree of Overgeneration

Overgeneration has been investigated through experimental techniques and by examining children's spontaneous productions. Berko (1958), in an experiment studying children's inflection of novel forms, found evidence that children use rules for inflectional suffixation of nouns and verbs. Pinker (1989), studying the acquisition of dative, passive, locative and causative argument structures, observed that in experimental situations children will produce argument structures for novel verbs that they are taught. Eventually, however, Pinker concluded that overall, children show a strong tendency toward conservatism (p. 318).

In spontaneous production data, Fodor (1985), commenting on a hypothesis of rule-based learning of passive argument structure proposed by Pinker, Lebeaux and Frost ((1987) but at the time, unpublished), notes that in 239 hours of transcripts of spontaneous child production data, they found only 2 instances of overgeneralization of the passive rule to non-passivizable verbs. Pinker (1989) also notes that although overgeneralization is evident in spontaneous production data, it is not the norm. He observes that overgeneralizations of verbal argument structures "...are quite uncommon considered as a proportion of the child's total speech or as a proportion of the child's sentences involving the particular argument structures" (p.319).

Fodor (1985) speculated that a higher degree of overgeneration might be found for inflectional morphology. However, recent research indicates that even for inflectional morphology, the extent of overgeneration that has been observed is less than anecdotal reports at one time led psycholinguists to believe.[4] For example, Marcus (1995), investigating the degree to which children overregularize English inflectional

morphology, studied the production data in the CHILDes corpus and found the mean rate of noun plural overregularization for 10 children (aged 1;3 to 5;2) to be 8.5%. For these same 10 children, overregularization of the verbal past tense was 7.3%. In another study, Marcus, Pinker, Ullman, Hollander, Rosen and Xu (1992) found the mean past tense overgeneralization rate for 83 children (aged 1;3 - 6;6) to be only 4%.

The issue of degree of overgeneration is only relevant under the assumption that a high degree of overgeneration is consonant with the existence of a rule. However, no obvious baseline (above which overgeneration can be considered to be rule-generated) has been established. When discussing empirical evidence for identifying an overregularization as rule-generated, Fodor (1985) argued that "...we have no way of knowing whether the observed cases of innovation should be regarded as many or few, relative to theoretical predictions. Are they numerous enough that they MUST have been rule-generated, or so few that they couldn't possibly have been?" (p. 3) Furthermore, conditions under which production occurs (i.e., experimental vs. naturalistic) and the number of communicative opportunities available play roles in the degree of overgeneration observed. Therefore, it seems unwise to pursue quantitative evidence alone as evidence of the presence of a lexical rule.

2.3.2. Two Proposals

As we saw earlier, while benign exceptions to overgeneralizations might be easily eradicated, embarrassing exceptions present a challenge to acquisition researchers and theorists. A number of proposals have been made. The two proposals considered below represent opposing solutions to Baker's paradox and are attempts to account for the acquisition of the

dative argument structure, singled out by Baker as problematic.[5]

1. Children construct property-predicting rules that merely capture lexical generalizations for cognitive economy. Although these rules are not generative, they may be used to construct forms when the child must fulfill a communicative need about which the grammar is silent.

This approach was proposed by Fodor (1985) and can be characterized as a modified conservative approach. Here Fodor argues against the kinds of rules that predict the existence in the language of a form that has not been witnessed in the input for those cases where exceptions to rules would be embarrassing, in the sense of Baker (1979). She refers to these as existence-predicting rules (EPRs). EPRs that embarrassing exceptions have been characterized, for example by Pinker (1989), as dependent on narrow semantic and morphophonological criteria to constrain rule application and eradicate overregularized forms. Constructing EPRs, therefore, requires hypothesis formation and testing, and extensive reevaluation of lexical entries as more and more lexical information is acquired. Fodor's argument against such rules is fueled by the uneconomical nature of this process, coupled with the low number of overregularizations that are evident in spontaneous child productions. Fodor suggests that instead of EPRs, children construct property-predicting rules (PPRs) that merely predict what a form or structure would look like if it did exist. Fodor describes a property-predicting rule for the dative as formulated along the lines of "...if there is a dative form of this verb, this is what its properties will be -- its morphology, its syntactic category and subcategorization features, and its meaning, all stated as a function of the morphology and syntax and meaning of the source verb" (p. 2). Unlike EPRs, PPRs do not create a learnability problem. Fodor's conception of them is that they are redundancy rules and are not generative. Their main function is cognitive economy. However, they may be used in production in just those cases where the grammar is silent. PPRs allow overgeneration without conjuring up the

problem of having to repeatedly revise the grammar since they have no constraints on application (other than inherent constraints such as that a verb could not passivize unless it were transitive). The products of PPRs are nonce, that is one-time, events. Fodor (1985) invokes analogy to account for "overregularized" forms stating that on occasion, "...a child would like to use a lexical item IF it existed, but he knows he doesn't know whether it exists; so he guesses, by analogy with similar items" (p. 7).

However, Fodor recognizes that there may be some fully general EPRs. In that case, learners must know innately which kinds of rules will be exceptions. Otherwise they would waste effort and make errors by trying to establish EPRs where they are not warranted or forming an EPR where the adult grammar has a PPR. As a first attempt at characterizing an innately defined boundary between PPRs and EPRs, Fodor suggests that the former apply to derivational morphological processes and the latter to inflectional processes. This has some plausibility since inflectional morphology typically exhibits fewer "gaps" (non-existent forms) than derivational morphology. Guessing that a verb's past tense is regular would be fairly safe because for every verb some past tense form must exist and, if the form were irregular, positive evidence of it would be available to drive out the overgenerated form. Derivational processes, by contrast, are not highly productive. Consider, for example, derivational affixation that produces a form with a syntactic category different from that of the base. Not all bases have forms in all four lexical categories (V, N, Adj, Adv) so it cannot be assumed by a learner that these exist in the same way that the past form of a verb can be assumed to exist.[6] Fodor's proposal that all and only inflectional lexical rules are EPRS presupposes that children innately distinguish

between inflection and derivation.[7] However, the inflectional/ derivational distinction has proven to be difficult for linguists to draw (see Chapter 3, Section 3.2.1).

Fodor (1985) claims that the only evidence to date of the existence of a derivational EPR is the high degree of productivity found in the experimental child data gathered by Pinker et al. (1987), who found that children productively used a passive rule with novel verbs that they were taught. However, even in that study, as Pinker (1989) later noted, "In every experiment, for every age range, and under every condition, we were more successful in eliciting a sentence containing a particular voice when the verb had been taught in that voice than when the verb had been taught in the other voice, an effect that reached statistical significance in every case" (p. 320).

2. Children construct existence-predicting rules but these rules are constrained by some set of criteria.

Pinker (1989), citing utterances such as "Put Eva the yukky one first" from Bowerman (1978) and "You finished me lots of rings" from the Brown corpus, proposes that although these are not generated by the adult grammar, they obey a broad-range semantic constraint in the adult grammar; i.e., that verbs that dativize must minimally be compatible with the notion of "change of possession" as "change of possession" is the semantic focus of the double-object form. Thus, this is an inherent constraint comparable to the inherent constraints of Fodor (1985). However, the examples above violate narrow-range morphophonological and semantic constraints. These constraints define narrow-range conflation classes, which represent subsets of the class of dativizable verbs. In Pinker's account, overgeneralizations are cut back as children

appreciate the semantic and morphophonological details of verbs that appear in the double-object dative; these details enable children to construct narrow-range constraints on a dative rule.

Pinker (1989) refers to non-affixing broad-range rules, such as that that which generates the double-object dative, as property-predicting while narrow-range rules are existence-predicting (p. 161). Pinker argues for both in order to account for the fact that adults distinguish between usages that are "innovative" and those that are "fully grammatical". Innovative usages, according to Pinker, result from the application of PPRs while EPRs generate forms that are perceived as fully grammatical.

The evidence Pinker cites for the existence of a dative EPR comes primarily from a study conducted by Gropen, Pinker, Hollander, Goldberg and Wilson (1989). In that study, 64 adult native speakers of English rated double-object and prepositional datives that employed 8 novel verbs, 4 monosyllabic and 4 polysyllabic. Monosyllabicity is seen as a morphophonological condition on rule application; i.e., a narrow-range constraint. These novel verbs appeared in prepositional dative sentences presented in paragraphs that indicated the intended meaning of the verbs. Half of the monosyllabic and half of the polysyllabic verbs included change of possession as part of their meanings and the other half did not. Furthermore, verbs varied with respect to whether their prepositional dative was a *to* or *for* dative.

Subjects rated the double-object datives on an acceptability scale that ranged from -3 (completely odd) through 0 (don't know) to +3 (perfectly natural). The general finding was that "...subjects judged double-object sentences which involved a change of possession as being significantly more

acceptable than those that did not; and for one verb which inherently involved a change of possession and which took the preposition *to*, subjects judged the sentence with monosyllabic verbs as being significantly more acceptable than that with polysyllabic verbs" (p. 224).

Notice that the morphophonological constraint (monosyllabicity) was only evident in one of the four "change of possession" verbs. As a basis for explaining the lack of evidence of the morphophonological constraint for the other three verbs, Gropen et al. note that "All three of these phonology-insensitive verbs were denominals conflating possession with the use of some instrument whose name contributed the verb stem: Caused motion in a sport using a specific instrument, creation using a specific instrument (a kind of machine), and obtaining using a kind of currency" (p. 224).

Gropen et al. conclude that the morphophonological constraint does not apply to some semantic subclasses, verbs semantically derived from namelike nouns being one such subclass. With this qualification, the experiment provides some support for the claim that adults know the narrow-range constraints on the dative EPR.

2.3.3. Comparing the Proposals

In sum, Fodor (1985) and Pinker (1989) both posit PPRs and EPRs, although they function differently in these two proposals. Fodor, taking a rather conservative approach, suggests that overgeneration in child production that results from the application of an EPR will only occur in just those cases where it can be corrected by positive evidence of the conventional forms. PPRs are redundancy rules that are only used in a productive manner when a communicative need arises about which the developing grammar makes

no claims. PPRs may have inherent constraints on application, but no constraints that must be learned; they apply via analogy and are one-time events. Fodor suggests that children are predisposed to knowing when to construct either EPRs or PPRs; she speculates that children may determine the type of rule construction required based on the inflectional/ derivational distinction.

For Pinker, the two types of rules are distinguished by constraints of application that are, respectively, narrow-range and broad-range, with the former a subset of the latter. Broad-range rules have inherent constraints while narrow-range rules have semantic and morphophonological constraints that are learned as verb semantics are refined and new input is encountered and analyzed. Learners must constantly reevaluate the input and modify the grammar to account for attested forms.

The main difference between the two proposals is the nature of the EPRs. In Fodor's (1985) account, no learnability problem is raised as EPRs are only constructed when overgeneralization can be constrained by positive evidence. For Pinker, however, EPR refinement proceeds at great cost to the learner. Pinker nonetheless argues for EPRs that cannot be constrained by positive evidence alone on the grounds that speakers distinguish between usages that are perceived as innovative and those that are perceived as fully grammatical. According to Pinker, the former result from the application of PPRs, the latter from the application of EPRs.

2.3.4. Choosing Between Proposals: A Research Agenda

Two accounts of lexical acquisition have been discussed. Pinker's (1989) proposal posits a complex and costly mechanism for constraining overgeneralization in order to account for an innovative/fully grammatical distinction that is only weakly supported by experimental evidence. Furthermore, it is not entirely clear that this distinction is a simple duality. It is quite possible that "innovative" and "fully grammatical" represent ends of a continuum that may more effectively be accounted for by an appeal to analogy. In addition, it has been argued following Fodor (1985), that there is no established quantitative criterion for distinguishing the application of a rule, be it an EPR or a PPR. Therefore, it is not obvious that the EPR/PPR distinction, as presented by Pinker, can be investigated empirically.

On the other hand, Fodor (1985) suggests that children are innately prepared to construct EPRs in some cases and PPRs in others. When PPRs are constructed, learning is conservative. While she speculates that choosing to construct one over the other may turn on the inflectional/derivational distinction, this may not be the right cut to make. Nonetheless, the notion of an innate distinction is intriguing and suggests a research agenda that expands the field of inquiry. Examining the acquisition of a number of instances of lexical learning will provide a broader base for identifying learner generalizations and for determining whether the decision to construct EPRs or PPRs is systematic.

As noted in Chapter 1, the focus of inquiry of the present research is the acquisition of the two adjectival comparative forms in English and the extent to which learning, with respect to these forms, is conservative or rule-based.

Chapter 2: NOTES

1. Here, the term *novel* refers to a form created by the experimenter. These could also be referred to as *nonsense words* or *possible non-words*.

2. I assume here that some form of the word, presumably the base form, must be in the child's lexicon in order to serve as input to the rule.

3. The term Uniqueness Principle was coined by Pinker (1984), but essentially derived from Wexler and Culicover (1980). Maratsos (in press) refers to this as a *blocking model* for the expulsion of overregularized forms.

4. However, Maratsos (in press) argues that these low numbers are an artifact of averaging overregularizations over a long span of time, e.g., three years. If a child's overregularized forms were considered over shorter spans of time, they would be relatively more frequent. Maratsos claims this as evidence for a wearing down model of overregularization eradication as opposed to the blocking model discussed earlier.

5. An alternative dative proposal by Hammouda (1988) claims that children are basically conservative learners but are influenced by a pragmatic tendency toward reduced forms. This tendency is characterized as the Reduced Form Tendency (RFT) Principle and it directs the learner to use the reduced form (in this case, the double-object dative) when: 1) two forms are permitted by the grammar; and, 2) for some particular lexical item, the lexicon does not provide sufficient information. According to Hammouda, the RFT is constrained by indirect negative evidence. That is, at some point, the failure to witness some verb in the double-object dative form serves as evidence that the verb is not dativizable and the RFT would no longer motivate the reduced form in that case. This proposal predicts that adults would converge to a greater extent with respect to the acceptability of double-object datives for high frequency as opposed to low frequency verbs on the grounds that their greater frequency increases the possibility of encountering both positive and indirect negative evidence of their dativizability. Hammouda provides experimental evidence to support this prediction. However, this proposal additionally predicts that positive evidence of the dativizability of low frequency verbs would be available as speakers, driven by the RFT, would produce these verbs in the double-object form until indirect negative evidence tells them otherwise. In fact, if speakers were doing this, over time, all low frequency verbs should be dativizable as a result of the RFT, and that is not the case.

6. Consider *eat*: V *eat*; N **eat* (preempted by *food*), but note slang *eats* in some dialects; Adj *eating, eaten*; Adv **eatingly, *eatenly*.

7. See Gordon (1985) for evidence that children have innate knowledge of level ordering with respect to the application of derivational and inflectional processes

Chapter 3: The Comparative Construction

3.1. Introduction

The acquisition of the English comparative construction is complicated by the presence of a linguistic duality, i.e., the suffixed and periphrastic forms. In addition, the distribution itself is in flux. Since two forms are associated with the comparative, we might consider the relationship between them in terms of markedness, which may affect a learner's prioritization of the alternatives. Furthermore, the fact that the distribution seems to be changing invites speculation as to the motivation of the change and the variables on which it turns.

3.2. The Comparative Construction: Crosslinguistic Observations

Languages vary along a number of dimensions with respect to how they encode comparison. Stassen (1985) cites six major types of comparative constructions encountered in a sample of 110 languages naming these the separative, allative, locative, exceed, conjoined and particle types.[1] English is a particle-type comparative language, which is defined as one where the standard of comparison is accompanied by a comparative particle, in this case, *than*.

In addition to differing with respect to comparative construction type, languages also differ with respect to whether the comparative form of adjectives is expressed analytically by a periphrastic construction (e.g., *Mary is more interesting than Sue*) or synthetically, through suffixation (e.g., *Mary is nicer than Sue*). Languages may employ one type or the other or, like English, both.

For example, the Italic languages (e.g., Italian, Spanish, Portuguese, French and Provencal) have no comparative suffix and consistently form the comparative periphrastically. Others, primarily the Germanic languages, have both a suffixed and a periphrastic form available (e.g., English, German, Dutch, Danish, Norwegian, Swedish, Icelandic). Persian (an Indo-Iranian language) and Bulgarian (a Slavic language) represent cases where only a suffixed form is possible. Therefore, it seems unlikely that the two forms stand in a relation of markedness with respect to each other; no implicational relationship exists, although the periphrastic is more prevalent among the many languages for which data have been reported. In fact, Greenberg (1966) notes the following: "A minority of the world's languages have, like English, an inflected comparative form of the adjective. More frequently a separate word modifies the adjective, as in English `X is more beautiful than Y'..." (pp. 88-89).

In languages such as English, Danish and Norwegian, which have the suffixed as well as the periphrastic form available, the distribution of these is claimed to turn on the number of syllables of the base adjective: the more syllables, the more likely that the comparative is formed periphrastically. However, in these languages participial adjectives never form the comparative through suffixation; this is true even when they are monosyllabic (e.g., *These clothes are *worner/more worn than those*). The inability of participial adjectives to take the comparative suffix is also evidenced in German where the suffix even attaches to multisyllabic stems. Unable to appeal to either syllable number or phonology (cf. *wilder/*rileder*) for an explanation, one could speculate that the apparent constraint against the suffixation of participial adjectives results instead from more general constraints

regarding word formation in these languages.

3.2.1. The Comparative Suffix: Inflectional or Derivational?

In the morphological literature, the *-er* comparative morpheme is usually assumed to be inflectional as opposed to derivational. However, throughout this literature, distinguishing between inflectional and derivational morphology has proved to be problematic, prompting Bybee's (1985) observation that this distinction is "...one of the most persistent undefinables in morphology" (p. 81). This distinction is troublesome because of the difficulty in clearly identifying the necessary and sufficient conditions for the inclusion of a morpheme in one class or the other. A number of criteria have been suggested, but all are plagued by counterexamples or theoretical problems. For inflection, some of the suggested criteria include semantic generality, degree of productivity, and failure to change syntactic category. Greenberg's (1954) notion of "obligatoriness", as reflected in proposals such as those of Matthews (1974) and Anderson (1992), seems most widely accepted. In this view, inflectional morphemes are seen to be required by the syntax of the sentence; i.e., they are "...bound, nonroot morphemes whose appearance in a particular position is compulsory" (Bybee, 1985, p. 81). In other words, no single monomorphemic word can substitute for a "base + inflection" combination.

Morphologists have noted that the comparative *-er* is a particularly difficult case to decide (Matthews, 1974; Aronoff, p.c.). For example, on the one hand it is semantically general (leaning toward classification as inflectional), while on the other it has limited productivity (leaning toward derivational classification). Even with respect to the criterion of obligatoriness, it is hard to classify the comparative morpheme. Matthews (1974) compares the sentences "It's

getting hot" to "It's getting hotter" where the positive and the comparative appear to be interchangeable, but notes that

> ...there are, of course, constructions in which the Positive and Comparative are not freely substitutable: one says *They are hotter than the others* but not *They are hot than the others*... Although the choices are not determined by other specific words in the construction...we could perhaps argue that they are determined by the nature of the construction itself....there is no indisputably simple form that can be substituted for *hotter* in *It's hotter than the others*. In this construction, the only alternatives are more complex phrases: for example, *more* or *less beautiful* in *She's more or less beautiful than you*. Here at least, the Comparative is an essential part of the grammatical statement. To distinguish the construction properly one has to say that *than* is preceded either by an Adjective with *less* or (as the case may be) by an Adjective with *-er* or *more*. (pp. 48-50)

How can obligatoriness be characterized, as Matthew's suggests, as "determined by the nature of the construction"? Following Bresnan's (1973) analysis of comparative constructions, perhaps *-er* may be viewed as one of a few possible obligatory fillers for the Determiner slot of a Phrasal category QP headed by a few possible heads Q. We can then say that the head, Q, is optional but given Q, *-er* is obligatory.

Therefore, in addition to mapping the distribution of *-er* (and *more + Adj*) in the adult and developing child grammar, an ongoing question is the correct classification of the comparative *-er* as either inflectional or derivational. Nonetheless, I will refer to it here, for the time

being, as "inflectional", if only in keeping with its usual classification in the morphological literature.

3.2.2. The Synthetic to Analytic Shift

The Italic, or Romance languages, derive from Latin, but unlike Latin, which has a comparative suffix, all comparatives in Romance are formed periphrastically. This shift from the synthetic to the analytic comparative represents a more general linguistic tendency that has been observed in Indo-European languages. Lakoff (1972, pp. 174-175), discussing language drift, lists a number of changes that occur in many or all of the Indo-European languages. These are listed in Table 3.1.

Table 3.1 Changes in Indo-European Languages (Lakoff, 1972)

1. **The nominal system:**
   a. The obligatory use of anaphoric, nonemphatic, subject pronouns.
   b. The use of articles, definite and indefinite.
   c. The use of prepositions instead of case endings.
2. **The verbal system:**
   a. The development of periphrastic causatives, inchoatives, etc.
   b. The development of periphrastic auxiliaries.
   c. The development of adverbs and comparatives.

Lakoff sees these changes as the byproduct of a metacondition on the way the grammar of a language as a whole may change. This metacondition states, "If there is a choice between a rule and a lexical item to produce a surface structure containing independent segments, as opposed to one containing morphologically bound forms, pick the former" or, more simply "...segmentalize where possible" (p. 178). It is not the case, however, that this metacondition expresses a linguistic universal; Lakoff notes that in other language families, the drift is going in the opposite direction. She defines drift, then, as

> ...historical fluctuation between syntheticity and analyticity" and cautions that "there is apparently no reason to suppose that either total syntheticity or total analyticity is the most "desirable" state for a language, or the state in which a language is most stable, since many languages swing back and forth from one to the other. Further, since there is this great discrepancy among languages as to the direction of the drift, it seems unlikely that one can assume any psychological motivation for languages to work toward one state or the other. (pp. 179-180)

The development of French from Latin is characterized by the replacement of synthetic by analytic forms, as well as by the fixing of word order. Bauer (1995), following Bichakjian (1987), discusses this development in terms of a shift from left-branching structures (that form autonomous words) to right-branching structures (that form phrases). Furthermore, contrary to Lakoff, Bauer argues that this is a unidirectional shift as right-branching structures have distinct advantages over left-branching structures in terms of language typology, acquisition and processing. Shift in the opposite direction, according to Bauer, is only due to external factors; i.e., language contact.

Slobin (1977), on the other hand, views the fluctuation between synthetic and analytic as the result of the simultaneous operation of four language imperatives or charges. "The first two - clarity and processibility - strive toward segmentalization. The other two charges - temporal compactness and expressiveness - strive toward synthesis..." (p. 192).

Whatever the motivation for the shift from synthetic to analytic forms, there is evidence that it is ongoing with respect to the distribution of the English comparative forms. The presence of both forms goes back to earlier stages of English. Mossé (1952), discussing comparative processes in Middle English, notes that the *-er* suffix was inherited from Old English.[2] The periphrastic construction that was used in Old English with participial adjectives was probably reinforced by French influence[3] and, "...from 1300 on it proliferated. It appeared as well with native adjectives as with those of French or Latin origin, and regardless of the number of syllables. We find just as many like... more noble...more profytable...as like...more swete `sweeter'...more wylde `wilder'" (p. 92).

Given Mossé's observation, it might be expected that by the present day, the shift would be complete and the suffix would be eradicated. As we have seen, however, this is not the case. In fact, a study by Kytö (1996) reveals that among a variety of adjective types, the suffixed form actually rose in rate of usage from 51.5% of the time between the years 1350 and 1420 to 58.8% by 1710.

Nor is it the case that the distribution of the two forms is currently stable. Barber (1964) notes that monosyllabic adjectives tend to form the comparative with the suffix, while multisyllabic adjectives tend to form the comparative periphrastically. Disyllabic adjectives are split, and it is here that most of the changeover from suffix to periphrastic is taking place. However, he also notes that the periphrastic has extended to some monosyllabic adjectives citing examples such as *more crude, more plain* and *more keen* (p. 132). Lakoff (1972) goes even further claiming that "All adjectives can be used with *more* and *most;*

those of more than two syllables cannot take *-er, -est,* and those of two syllables now seem more and more to prefer the analytic form" (pp. 191-192). While the claim that all adjectives can be used with *more* and *most* seems too strong,[4] it appears be the case that it is the periphrastic that has a wider, and expanding, scope of application.

The claim for a current move away from the synthetic comparative is supported by work done by Ballinger (1991). Motivated by Lamberts' (1971) observation that some monosyllabic words such as *chic* do not take the suffixed form while some polysyllabic forms such as *unhappy* do, she tested two groups of subjects (American and British) in a grammaticality judgment task employing suffixed comparative forms. Subjects judged *-er* forms as being "something they would use in normal speech", "something they were unsure of", or "something they would never use"; these classifications were associated with the scores "2", "1" and "0", respectively. Ballinger found that the American subjects showed a greater tendency to accept the suffixed form than the British, although the between-groups difference was small (British group: 0.93; American group: 1.02). Moreover, a substantial amount of within-group individual variation was evident overall, with mean ratings ranging from 0.54 to 1.20 for subjects in the British group and from 0.83 to 1.31 for subjects in the American group. For monosyllabic adjectives, mean usage ratings were 1.69 for British speakers and 1.77 for American.[5] Disyllabic adjectives ending in *-y* or *-ly* were consistently given high ratings by both groups.

Ballinger interprets her results as suggesting that two systems - what she terms inflectional and periphrastic - are in competition and concludes that:

> ...the older system is the inflected one which is losing ground to the newer periphrastic system. The *-er* is not nearly so productive now as it was a few hundred years ago when forms like `secreter' and `famouser' were common (Lamberts 1971; 255-259).
>
> Regardless of the changing situation the inflected comparative form seems to be in, it remains a very real and functioning morphological system in English. The Survey of English Usage indicates that the *-er* form occurs more frequently in speech than does the periphrastic form, although fewer individual adjectives may take the *-er* form than take the periphrastic form. This, because many common words in frequent and widespread use, possess the inflection by right of inheritance (Lamberts 1971; 258). This frequency of usage would appear to insure that this form will not soon fall into obscurity. (p. 3)

From a historical perspective, Ballinger offers empirical evidence of the shift away from the suffixed form; however, her findings say nothing about the nature of the shift and whether or not it can be accounted for in any systematic way. That is, on what factors does the current usage depend and can these be discovered and utilized by the child language learner? I address this issue in Chapter 4.

3.3. Conclusion

The shift from synthetic to analytic forms is apparently representative of a more general language change. While Bauer (1995) sees this shift as unidirectional and motivated by advantages in acquisition and processing, both Lakoff (1972) and Slobin (1977) allow that the shift may go in the opposite direction - Lakoff as the result of a different metacondition, and Slobin because shift in either direction represents part of an ongoing cycle. Since markedness considerations do not seem relevant here, no predictions with respect to real-time acquisition can be made unless Bauer is correct and analytic forms carry an advantage in acquisition. In that case, where a language offers a choice, children might first form the comparative analytically, learning the synthetic form later.

Establishing the adult distribution will shed light on whether, as Ballinger suggests, comparative suffixation "remains a very real and functioning morphological system" in the adult grammar. According to Ballinger (1991), English is in flux with respect to the comparative and she attributes the persistence of the synthetic form in the adult grammar to the high frequency of forms to which it applies. If this is true, frequency in the input may complicate[6] the acquisition process. Furthermore, the order in which the two comparative forms are acquired is an empirical question and will be addressed in Chapters 5 and 6.

Chapter 3: NOTES

1. All examples are from Stassen (1985). See Stassen for a discussion of sample selection. Types of Comparative Constructions he cites are:

1. Separative: The standard is part of an adverbial phrase with a spatial or non-spatial separative interpretation.
Example: Japanese: *Nohon-go wa doits-go yorimuzukashi*
Japanese TOP German from difficult
'Japanese is more difficult than German'

2. Allative: The standard is part of an adverbial goal phrase.
Example: Maasai: *Sapuk ol -kondi to l -kibulekeny*
is-big the-deer to the-waterbuck
'The deer is bigger than the waterbuck'

3. Locative: The standard is part of an adverbial phrase that indicates spatial or non-spatial contact.
Example: Chuckchee: Gamga-qla'ul-ik qwtvu-ci -um
all -men -on strong-more-1SG
'I am stronger than all men'

4. Exceed: The standard is the direct object of a verb meaning "to exceed".
Example: Vietnamese: Vang qui hon bac
gold valuable exceed silver
'Gold is worth more than silver'

5. Conjoined: Comparison through the coordination of two clauses.
Example: Sika: Dzrang tica gahar, dzrand rei kesik
horse that big horse this small
'That horse is bigger than this horse'

6. Particle: The standard is accompanied by a comparative particle.
Example: Hungarian: Istvan magasa-bb mint Peter
I.-NOM tall -PRT than P.-NOM
'Istvan is taller than Peter'

2. According to Wyld (1914), in Old English the comparative was formed with the suffix *-ra*. By Middle English, the suffix had become *-re* or *-er*.

3. Although, as Lindquist (1998) notes, Pound (1901) argues that the periphrastic was more likely borrowed from Latin and Knüpfer (1921) that it arose independently.

4. Some periphrastic constructions with monosyllabics, which sound ungrammatical (*more big, more old*, etc.) improve under certain conditions, for example, when the degree of two adjectives is being compared (**He is more old than John/?He is more old than (he is) wise*); or when the intensifier *much* precedes the construction (**He is more old than John/?He is much more old than John*). It seems that monosyllabics in analytic comparative constructions such as *more old* sound better than multisyllabic synthetic forms such as *interestinger*. In any case, the grammaticality of monosyllabics in periphrastic constructions is an empirical question. It will be addressed in Chapters 4 and 7.

5. These numbers were adjusted to 1.96 and 1.92 respectively when *cuter* (British: 0.69; American: 2.00) and *gladder* (British 0.25; American 0.31) were omitted.

6. Kroch (1989) argues that "...speakers learning a language in the course of a gradual change learn two sets of well-formedness principles for certain grammatical subsystems and that over historic time pressures associated with usage (presumably processing or discourse structure based) drive out one of the alternatives....where competing syntactic or morphological subsystems coexist without overt cues, the only answer to the learning question that is currently available is that the learners' innate dispositions, as specified by UG, force them to analyze the competing variants in the linguistic environment as evidence for two linguistic systems" (p.349).

Chapter 4: Establishing the Adult Distribution

4.1. Introduction

As noted in Chapter 3, English has two ways to express the comparative adjective: both a suffixed and periphrastic form exist. It is claimed in previous work that for some adjectives, the two forms are in complementary, albeit changing, distribution; however, for other adjectives, both options are claimed to be available (e.g., Barber, 1964; Aronoff, 1976; Ballinger, 1991).[1] The empirical studies presented here were designed to establish the distribution of the comparative forms in the adult grammar, with the goal of determining whether this distribution is in any way systematic. If systematicity were present, there is the possibility that it could be exploited by a language learner; if not, the language learner would need to learn conservatively. The experiments reported below were designed to elicit, from adults, grammaticality judgments for a variety of English adjectives presented in each of the two forms of the comparative.

4.1.1. Claims About the Linguistic Basis of the Distribution

Aronoff (1976) describes the suffixed/periphrastic distribution in the following way: Monosyllabic adjectives take *-er* (e.g., *big/bigger*) as do disyllables ending in *-y* (e.g., *happy/happier*), while all other adjectives construct their comparative forms periphrastically (i.e., as *more + Adj*). However, this distribution is not entirely clean; exceptions exist (Aronoff, e.g., cites **apter* and *stupider* as exceptions), as does the possibility of free variation, in special circumstances. For example, Aronoff claims that disyllables ending in *-y* that can be analyzed as morphologically complex *X+ly* have both options available (e.g., *lovely*, which allows both *lovelier* and *more lovely*). He

additionally cites *more happy* and *perverser* as running against his generalization, recognizing them as having some degree of acceptability rather than clear ungrammaticality, and lists *silly* as having both options available (p. 92), although it does not seem to be legitimately analyzable as *X+ly*.

Frank (1972) also claims that monosyllabic adjectives form the comparative by suffixation of *-er*, but notes that when a speaker wants to emphasize the idea of comparison, *more* can be used with monosyllables.[2] She gives as an example, "The more rich we are, the more wise we seem" (p.119). As observed in Note 4 of Chapter 3, the periphrastic form improves for monosyllabic adjectives in contexts such as *He is more old than (he is) wise;* in fact, the periphrastic seems more or less obligatory in these cases (cf. *?/*He is older than wise*). For disyllabic adjectives, Frank describes the facts in the following way. Those ending in *-y* preceded by a consonant take the suffix (e.g., *prettier*) as do some of the disyllabic adjectives that end in *-le* (Frank cites those ending in *-ple, -ble,* and occasionally *-tle* and *-dle* (e.g., *simpler, nobler, subtler* and *idler,* respectively). She also claims that both comparative options are available for disyllabics ending in *-ow, -some* and *-er* (e.g., *narrow,* which allows both *narrower* and *more narrow;* similarly, *handsome,* allowing *handsomer* and *more handsome,* and *clever,* allowing both *cleverer* and *more clever*), but that the suffixed forms of these adjectives are less formal than their periphrastic counterparts. Other disyllabic adjectives that Frank describes as having both options available are classified with respect to stress: those with initial syllable stress (e.g., *pleasant, stupid, quiet*), and those with final syllable stress (e.g., *polite, profound,*

remote). However, since stress is not a conditioning factor, these essentially reduce to no more than a list of additional disyllabic adjectives that Frank claims have both comparative forms available, but which satisfy no particular criterion for doing so.

Taken together, the following generalizations emerge:

1. Monosyllabic adjectives, and disyllabic adjectives that end in *-y*, or in *-ple*, *-ble*, and sometimes *-tle* and *-dle*, take the suffix.
2. Disyllabic adjectives ending in *-ly*, *-ow*, *-some*, and *-er* (along with a variety of others that cannot be easily categorized) have both comparative options available.
3. Adjectives of more than two syllables and disyllabics other than those included under (1) and (2) form the comparative periphrastically.[3]

Before investigating whether or not these descriptions are empirically supported, it is important to consider whether or not they could be useful to a language learner. Since the periphrastic comparative is used with a greater variety of adjective types, conditions under which the suffixed form obtains represent the more exclusive case and will be considered here. Syllable number is an obvious condition as adjectives must be two syllables or less to have a synthetic comparative form. Syllabicity should be a salient fact for a child learning language, given that current acquisition research suggests that even very young babies appear to process the speech stream in terms of syllables (Bijeljac-Babic, Bertoncini and Mehler, 1993). So, the monosyllabic/multisyllabic distinction may be linguistically salient to children.

Both Aronoff and Frank agree that disyllabic adjectives that end in *-y* have a synthetic comparative form. Notice, however, that Frank places a constraint on this condition; i.e., that the *-y* must be preceded by a

consonant. Frank is clearly considering *-y* orthographically as she presents no phonological analysis; an orthographic condition, however, is useless to a child acquiring language and in any case seems an unlikely basis for this kind of generalization. Furthermore, as written language is parasitic on spoken language, even the conditions on the adult distribution need to be cast in a more authentic linguistic framework. Therefore, the question to be raised is whether this orthographic *-y* can be interpreted either phonologically or morphologically in the adult language and whether it could be useful to the language learner.

From a phonological perspective, Frank's requirement that the -y be preceded by a consonant assures that the *-y* represents a syllable nucleus and not the coda of the adjective's second syllable. This constraint seems to have weak force, as it does not exclude much; perhaps *halfway* and *noonday,* which seem to be marginal adjectives (e.g., *halfway mark* and *noonday sun*) and *gooey* and *gluey,* which contain glides.

How might orthographic *-y* be interpreted phonologically? The *-y* might be interpreted as an unstressed syllable nucleus /i/. However, long vowels such as /i/ usually attract stress, while disyllabic adjectives that end in *-y* have stress on the first syllable, so *-y* might be better analyzed as the underlying short vowel /ɪ/ which, in many dialects, undergoes word final lengthening. Therefore, a phonological condition for -er affixation might be one where the suffix attaches to an unstressed, lengthened, word-final /ɪ/.

From a morphological perspective for many disyllabic adjectives that end in *-y,* the *-y* represents an adjectival derivational morpheme. English

has a considerable number of such forms. Therefore the adjective might be represented as *X+y* where *X* is verb or noun *(e.g., creepy, clingy, weighty)*. Suffixation may be morphologically as opposed to phonologically constrained, with affixation to derivational adjectival *-y*. However, for other adjectives ending in *-y* (e.g., *pretty, happy, silly*), this analysis is not possible. In these cases, for *-er* affixation to result from a morphological as opposed to phonological generalization, *-y* must at least have the status of a pseudo-suffix. This notion may be plausible in light of the fact that the number of adjectives that have a true morphemic suffix *-y* far exceeds that of "pseudo-suffixed" adjectives, possibly due to the high degree of productivity of *-y*.[4]

Adjectives ending in *-ple, -ble, -tle* and *-dle* are also claimed to have synthetic comparatives. Since *-le* has no morphological status in English, it is necessary to ask what it means phonologically for an adjective to end in orthographic *-ple, -ble, -tle or -dle*.
In English, the pronunciation of [əl] as the final syllable of an adjective can be expressed orthographically in a number of ways: *-le* (e.g., *simple*), *-ile* (e.g., *fragile*), *-il* (e.g., *evil*) and *-al* (e.g., *primal*). We can begin by asking whether there is a phonological distinction between those adjectives that end in *-le* and those that end in *-ile, -il* and *-al* that is captured by the difference in orthographic representations and that can account for why *littler* is acceptable but **fragiler, *eviler* and **primaler* are not.

One analysis is that *-le* disyllabic adjectives have no underlying vowel so that /l̩/ is syllabic and serves as the syllable nucleus. This view is

supported when one considers that even with the addition of the suffix, the adjectives above remain disyllabic (e.g., [sɪm plər], [no blər], [lɪt lər], and [ajd lər]) although in some dialects, these may be trisyllabic as well (e.g., [lɪ tl̩ ər]). In any case, it is never true that *-ile, -il* and *-al* adjectives remain disyllabic when suffixed to form the comparative.

If it were the case that *-le* represents an underlying syllabic liquid, we might then ask why Frank limits suffixation to adjectives ending in *-ple, -ble, -tle* and *-dle*. A more general and phonologically explanatory classification would be to express the condition as "disyllabic adjectives ending in syllabic /l̩/ preceded by a stop." But, of course, this assumes that *-kle* and *-gle* disyllabic adjectives, which Frank does not include, also allow comparative suffixation. In fact, Frank's omission of these endings serves to exclude only the adjectives *fickle* and *single*. While *single* may be excluded for other reasons (i.e., its semantics, see Section 4.1.2 below), *fickle* seems to allow comparative suffixation in many dialects, presumably resulting in the trisyllabic [fɪk l̩ ər]. If this were merely an oversight by Frank, the more general claim regarding stops could be supported. If, on the other hand, *fickler* is not considered permissible, the generalization needs to be more tightly constrained.

One way to constrain the generalization would be to look for a natural class that includes the bilabial and alveolar stops but which excludes the velar stops. Jakobson and Halle's (1956) feature *diffuse* can be used to describe front consonants; since the only diffuse stops in English are the bilabials and alveolars, this might be the correct way to characterize the generalization as expressed orthographically by Frank.

Why, however, would this phonological condition be salient? It may be relevant that the pronunciation of a diffuse stop with a syllabic /l̩/ permits lateral plosion (also known as lateral release) and facilitates articulation.

I turn now to those adjectives that are claimed to have both comparative options available. Again, assuming that the periphrastic is the more general of the two comparative forms, it can be asked why certain disyllabic adjectives allow the suffixed option as well. Recall Aronoff's claim that adjectives that can be represented as *X+ly* have both options available. This is a morphological analysis and may be useful to a child capable of performing such an analysis. Failure to do so, however, would essentially reduce *-ly* adjectives to the "pseudo-suffixed" *-y* adjectives discussed above. Treating *-ly* adjectives as *-y* adjectives would present no great problem since the result would be an error of omission (not producing periphrastic *-ly* forms) but not commission (given that for *-ly* forms, both options are available). Identification of *-ly*, then, as an adjectival derivational morpheme distinct from *-y* can be viewed not as a condition for suffixation, but rather as a condition for allowing the periphrastic. In other words, *-y* disyllabic adjectives have suffixed comparative forms; *-ly* disyllabics have both forms available, and failure to recognize the *-ly* morpheme results in its analysis as the "pseudo-suffix" *-y* allowing subsequent suffixation for the comparative.

Given that *-ly* adjectives may sometimes be analyzed as *-y* forms, the question can be raised as to whether *-ly* disyllabic adjectives are treated differently from *-y* adjectives. A greater acceptance of *-ly* periphrastic comparatives as compared to *-y* periphrastic comparatives

would count as evidence that they are. The research described below is designed, in part, to address this issue.

The endings *-ow* and *-er*,[5] like *-le*, have no salient, productive morphological status, but in these cases, the pronunciation of each is not associated with any additional English orthographic representation to which it could be compared. The ending *-some*, on the other hand, is an adjectival derivational morpheme according to Marchand (1969). Again, we could argue that these forms take the periphrastic but allow suffixation on certain grounds. For example, the adjectival morpheme *-some* could be interpreted in a similar way to *-le*; i.e., there is no underlying vowel and the nasal /m̩/ is syllabic. However, unlike *-le* adjectives, *-some* adjectives cannot remain disyllabic in the synthetic comparative form, making it difficult to argue for an underlying syllabic /m̩/. The same could be said regarding *-er* under an analysis of /r̩/ as syllabic. The ending *-ow*, however, might have a similar analysis to *-y* in that the long vowel, since it does not attract stress, might be interpreted as an underlying short vowel which, depending on the dialect, might undergo word final lengthening. If this were the case, the obvious question is why *-ow* disyllabic adjectives are not characterized in the same way as those ending in *-y*; i.e., as forming the comparative by suffixation only. In any case, it seems difficult to find a phonological generalization that can account for all the adjective types that are claimed to have both comparative options available.

In sum, linguistic interpretations of conditions for comparative suffixation include monosyllabicity and, under certain conditions, disyllabicity. For monosyllabics, a linguistic analysis is limited to

phonology; i.e., the adjective's monosyllabicity. For disyllabics, particular adjective endings lend themselves to phonological and/or morphological analysis, but it is difficult to find a single analysis of either kind that can account for all cases of comparative suffixation. Furthermore, no single phonological analysis can account for comparative suffixation for monosyllabics and disyllabics taken together. At best, then, the generalizations made by Aronoff (1976) and Frank (1972) seem rather stipulative from a linguistic perspective and essentially reduce to phonology: monosyllabics and some disyllabics have only suffixed comparative forms while other disyllabics have both options available.

The experimental study described below introduced three levels of the variable Phonological Type to test the generalizations discussed above. These are summarized below:

1. **monosyllabics**: expected suffixed comparatives;
2. **1-disyllabics** (Y and LE disyllabics): expected suffixed comparatives;
3. **2-disyllabics** (LY, OW, SOME and ER disyllabics): expected to allow both comparative forms.

4.1.2. Accounting for Exceptions

Working on the assumption that the generalizations made by Aronoff and Frank regarding comparative suffixation are empirically supported, exceptions must be examined and explained in an effort to find some systematicity that might be exploited by a language learner in order to cut back on an overly general rule. As noted earlier, Aronoff cites **apter* as an exception to monosyllabics forming comparatives by suffixation. Fodor (1985), discussing partial lexical regularities, notes the ungrammaticality of some color words such as **roser* and **golder* (cf. *redder, greener*). Ballinger (1991) questioned **chicer*. Is

there any principled way to account for exceptions such as these? That is, under what conditions do those adjectives that are expected on phonological grounds to have suffixed comparative forms, have periphrastic forms instead?

An obvious characteristic shared by all of the exceptions noted above is that none of them are of very high frequency. For example, *apt* occurs only 15 times per million tokens in the Francis and Kucera (1982) corpus, *chic* only 7 times and *rose* and *gold*, as adjectives, 1 and 15 times, respectively.[6]

Since these monosyllabic exceptions to comparative suffixation are of relatively low frequency, we may consider the possible generalization that all low frequency adjectives permit the periphrastic comparative only, regardless of whether they fit the phonological criteria for having a synthetic comparative form.

To test the frequency hypothesis, Frequency was introduced as a two-level variable (high and low) and manipulated for adjectives of each phonological type. The prediction was that only high frequency forms have suffixed comparatives. Such a result would indicate that no productive rule for comparative suffixation based on phonological conditions is in effect; rather, it would provide support for a theory of lexical learning that proceeds conservatively. The rationale for this conclusion is that frequency is a fact about performance and is not a linguistic property that could be a condition on a lexical rule. Therefore, any frequency effect must be due to the learner rejecting a form that he or she has not heard often enough. In other words, learners list in their lexicons suffixed comparatives that appear frequently

enough in their input to warrant listing. Low frequency forms fail to meet this criterion and are, therefore, not listed.

If suffixed comparatives are learned conservatively, learning would depend on encountering the suffixed comparatives themselves, and not the base adjectival forms. To that end, it is the frequency of the suffixed comparative and not the base adjective that is crucial. In fact, while frequency counts of suffixed comparatives are much lower than those of their corresponding base adjectives, the two numbers seem to correlate. The only exceptions are high frequency adjectives that are not gradable (Table 4.1, p. 45). Clearly, a non-gradable adjective has few opportunities for comparative usage; consider *single* noted above. Generally, non-gradable adjectives are members of pairs of complementary antonyms (such as the pairs *dead/alive* and *present/absent*) where the notion of degree is not usually operative. To test the effect of Semantic Compatibility as a special case of frequency, gradable and non-gradable monosyllabic adjectives were used in this study.

4.1.3. Evidence of Lexical Rules: Novel Adjective Forms

As noted earlier, if systematicity were to be found in the distribution of the suffixed and/or periphrastic comparative forms, the generalization that captures it could be exploited by a language learner and used (at least in principle) to formulate a productive rule. However, it is hard to tell whether a comparative form results from the application of a rule or is listed individually in the lexicon. Since Berko's (1958) study of productivity in child grammars, it has been standard to use novel forms as a litmus test for the presence of a productive rule. The logic is that if the form is a non-word, it could not have been attested in the child's input and learned conservatively.

Therefore, the study of comparatives reported here included novel adjectives that reflected the phonological facts represented by the design variable Phonological Type; i.e., monosyllabic, 1-disyllabic, and 2-disyllabic. For obvious reasons, novel adjectives cannot vary in terms of Frequency (as they represent zero frequency) or Semantic Compatibility (as they have no associated meaning).

4.2. Experiments

4.2.1. Method

Materials and Design: Two kinds of tasks were used in three different experiments. In an absolute judgment task, subjects were asked to rate sentences, presented singly, for naturalness. Each sentence contained an adjective appearing in one or other form of the comparative. In a relative judgment task, subjects were asked to choose the more natural of two sentences, presented as a pair, differing only in the comparative form in which the adjective appeared. The absolute judgment task was employed in an experiment that used real adjectives and which will be referred to as the Real Absolute Experiment. The relative judgment task was used in two different experiments, one using real adjectives and one using novel adjectives that mimicked real adjectives in terms of Phonological Type. These will be referred to as the Real Relative Experiment and the Novel Relative Experiment, respectively.
Both relative and absolute judgments were sought for the real adjectives because, potentially, different information is contributed by each type of judgment. A relative judgment simply indicates which of the two comparative forms a subject prefers; it says nothing about how acceptable the subject feels each of the individual forms to be, nor does it give any direct information with respect to the degree to which the form chosen as more natural is preferred. The subject is forced to

choose one of the pair. However, he or she may find both forms grammatical, both ungrammatical or both of questionable grammaticality; one form may be slightly preferred, or greatly preferred or both may be judged to be of equal grammaticality. Absolute judgments, on the other hand, are more sensitive indicators of how a subject views a particular form, but they too have their shortcomings if used exclusively. It is never guaranteed that different subjects' assignments of the same numerical value have exactly the same intended import; at most it can be assumed that the same rating approximately reflects the same intended evaluation for different subjects. That is, it is difficult to know how one subject's assignment of a rating compares to that of another subject -- or even how stable any single subject's assignment of ratings might be from occasion to occasion. Therefore, it cannot necessarily be inferred, especially in those cases where absolute ratings for both comparative forms of a given adjective are close, which form subjects would prefer if forced to make a choice as they are in any particular sentence that they utter spontaneously. For these reasons, it was decided to ask subjects to perform both types of tasks. If subjects are performing reliably, there should, of course, be a high correlation between patterns of difference in the absolute ratings, and patterns in the relative judgments.

Real Relative Experiment

The Real Relative Experiment had a basic 3 x 2 factorial design with three levels of Phonological Type (monosyllabic, 1-disyllabic, and 2-disyllabic) and two levels of Frequency (high frequency and low frequency). Within this larger design, for the monosyllabic adjectives only, Semantic Compatibility was manipulated in a 2 x 2 factorial design with two levels of Semantic Compatibility (semantically compatible and

semantically incompatible) and, as elsewhere, two levels of Frequency. Four items were selected for each cell of this complex design; 24 filled out the basic design, and 8 additional items created the design nested within the monosyllabics. This experiment was implemented within subjects; i.e., all subjects made judgments over the entire materials set.

To create the list of real adjectives through which the distribution of the two forms of the comparative could be assessed in the Real Relative Experiment, 32 adjectives were selected to represent the design variables discussed above. High frequency (HF) was defined here as occurring 40 or more times per million tokens in the Francis and Kucera (1982) corpus, picking out words appearing in, roughly, the top 10% of the vocabulary; low frequency (LF) was defined as occurring less than 10 times per million. For adjectives within each Phonological Type -- monosyllabic (MS), 1-disyllabic (1DS), and 2-disyllabic (2DS) -- an effort was made to choose adjectives so as to give the sharpest contrast possible with respect to differences in frequency. Given the opportunities provided by the language, the resulting contrasts were sharper for MS and 1DS adjectives than for 2DS adjectives.

For the MS nested design, semantically compatible (SC) adjectives were gradable and semantically incompatible (SI) adjectives were not. The sets of test adjectives with their associated frequency counts appear in Table 4.1 below. In the test sentences, test adjectives appeared as comparative adjectival predicates.

Table 4.1 Test Adjectives and Frequency Counts (Occurrence Per Million Tokens in Francis and Kucera (1982) Corpus)

Monosyllabic (MS): Claimed to have suffixed comparative

SC				SI			
HF		**LF**		**HF**		**LF**	
old	643 (93)	lax	3 (0)	right	224 (0)	void	2 (0)
cold	147 (5)	sly	5 (0)	wrong	117 (0)	fake	8 (0)
short	195 (18)	vile	5 (0)	dead	166 (0)	mute	3 (0)
long	541 (69)	gaunt	6 (0)	whole	259 (0)	lone	8 (0)

1-Disyllabic (1DS): Claimed to have suffixed comparative

HF		**LF**	
little	318 (0)	brittle	3 (0)
simple	160 (18)	feeble	8 (0)
happy	97 (11)	stingy	1 (0)
heavy	110 (14)	dainty	3 (0)

2-Disyllabic (2DS): Claimed to have both comparative forms

HF		**LF**	
friendly	61 (2)	shapely	2 (0)
narrow	63 (7)	mellow	1 (0)
handsome	40 (2)	irksome	1 (0)
bitter	53 (0)	meager	6 (0)

Notes: 1) Frequency counts for the corresponding synthetic comparative forms appear in parentheses to the right of base form counts; 2) Counts for "old" and "little" include the shortened forms "ol'" and "li'l", respectively; excluding these would have had no effect on the classification of these adjectives as "high frequency".

Materials consisted of 64 pairs of sentences: 32 test pairs and 32 filler pairs. In one sentence of each test pair, the test adjective appeared in the suffixed comparative form; in the other, it appeared in the periphrastic. An example would be *Bob's dog is friendlier than he used to be/Bob's dog is more friendly than he used to be.* Presentation order with respect to comparative type was varied so that half of the time the suffixed comparative was the first sentence of the pair and half of the time the periphrastic form appeared first.

Filler pairs, included to reduce carry-over effects, also used adjectives as predicates, but not comparatively. Adjectives for the fillers were selected to imitate the kinds of choices that it was anticipated the subjects would be making for the test items in the Real Relative Experiment. That is, in half of the cases, test pairs were constructed so that one comparative choice would clearly be preferred, as was predicted to be the case for semantically compatible MS adjectives and also for 1DS adjectives (cf. *older* vs. *more old; heavier vs. more heavy*) where the suffixed form is expected to be preferred over the periphrastic. The filler pair *crowded/*crowdy,* which differ in that *crowded* is attested and **crowdy* is not, is matched to this type of test pair. In a one-fourth of the test pairs, both choices might be equally acceptable, as is claimed for 2DS adjectives. This type of choice is represented by the filler pair *unafraid/not afraid,* where both are attested forms.[7] In the remaining cases (also one-fourth of the total), subjects would be choosing between two forms, neither of which is wholly acceptable. This might be true, for example, in the case of the semantically incompatible adjectives such as *dead,* where choosing either *deader* or *more dead* may indicate preference only in the sense of the lesser of two evils. The filler pair **inacceptable/*disacceptable,* where neither form is attested, represents this kind of choice. Appendix A lists the filler adjective pairs selected for the Real Relative Experiment.

The 64 sentence pairs in the Real Relative Experiment were pseudo-randomly ordered in two blocks (of which subjects were unaware). Each block contained 16 test pairs (2 each of the 8 adjective subtypes) and 16 fillers (8 attested vs. unattested and 4 each of the other two types).

Real Absolute Experiment

The construction and design of the Real Absolute Experiment exactly followed that of the Real Relative Experiment in both its basic and nested components, adding only an additional factor across the board, Comparative Type. This two-level factor contrasts test sentences, judged one at a time, in which the adjective appeared either in the periphrastic (PER) form or in suffixed (SUF) form. In its implementations, this experiment split materials between two counter-balance versions, so that any version contained examples of each of the item types, without repetition of materials.

Materials consisted of 64 sentences, 32 test sentences and 32 fillers. One member of each of the Real Relative Experiment pairs was presented for judgment. Order of presentation of these in the Real Absolute Experiment mimicked that of the Real Relative Experiment. In the test sentences, half of the adjectives appeared in the suffixed and half in the periphrastic comparative form. So that subjects would not encounter repeated materials, items were distributed in a counterbalanced design to form two versions, each of which was seen by half of the subjects. Thus, one subject sub-group made judgments about, for example, *Bob's dog is more friendly than he used to be* while the other sub-group judged *Bob's dog is friendlier than he used to be*.

Fillers for the Real Absolute Experiment were composed of one member of each of the Real Relative Experiment filler pairs. Filler sentences that contained attested and unattested forms were distributed in the same proportions as they had been in the Real Relative Experiment, and were identical in both versions.

Novel Relative Experiment

The Novel Relative Experiment had a one-factor design with three levels of Phonological Type (MS, 1DS and 2DS). Test materials consisted of twelve novel adjectives that were created to mimic the levels of this variable in the experiments using real adjectives. These appear in Table 4.2 below.

Table 4.2 Novel Test Adjectives

MS	1DS	2DS
sant	kittle	puttly
sturt	rupple	dillow
sall	dempy	felsome
zelk	rilty	fumper

Subjects were not asked to give absolute ratings to sentences with novel adjectives (due to their inherent oddity), but only to select between two possible alternative comparatives. Therefore, as noted earlier, a relative judgment task was used with this experiment that employed novel adjectives. Materials consisted of 24 sentence pairs, 12 test pairs and 12 filler pairs, pseudo-randomly ordered in two blocks (of which subjects were unaware) with equal numbers of fillers and Phonological Types represented in each. As with the Real Relative Experiment, test adjectives appeared as sentential comparative predicates. One member of each pair appeared in the suffixed comparative form and the other in the periphrastic. Presentation order varied so that subjects would encounter the suffixed form first half of the time. Filler pairs also used novel adjectives as sentential predicates. Pair members either contrasted two derivational affixes or contrasted affixational and periphrastic negation. The Novel Relative Experiment was implemented within-subject.

Procedure: Data were gathered in two separate sessions with two different groups of subjects. In each session, subjects performed all three experiments.

In a single session, subjects were asked to complete three different questionnaires corresponding to the three experiments. Since the same test adjectives appeared in both the Real Absolute and Real Relative Experiments, and all subjects undertook both tasks, ordering of the two presented a problem. It was decided to have subjects perform the Real Absolute Experiment first. While it is true that if subjects performed the Real Absolute Experiment first, exposure to one comparative type might bias choices in the Real Relative Experiment, it seemed more advisable to do this than the alternative, which would be to have subjects perform the Real Relative Experiment first. In that case, exposure to both possible comparatives might bias the absolute ratings, which were assumed to be the more sensitive of the two judgment measures.

For the Real Absolute Experiment, subjects were given verbal instructions to rate sentences on a 5-point scale where 1 was defined as "sounds terrible", 5 was defined as "sounds fine" and 2, 3, and 4 were described as "something in between". Materials were presented in written form on eight pages and subjects were asked to indicate their rating by circling one of the 5 numbers on a scale that appeared beneath each test sentence. For example:

Bob's dog is friendlier than he used to be.

1	2	3	4	5
sounds terrible				sounds fine

Subjects were asked to make their judgments as quickly as possible, and not go back to reconsider earlier responses. A practice session followed the instructions. When all the subjects had finished rating the practice sentences, they were asked, for each sentence, if they had given a rating above 3, below 3, or 3. This was to confirm that they had understood the task. Most of the subjects rated sentences similarly, but care was taken by the experimenter not to show approval or disapproval of subjects' responses.

Following the ratings practice, subjects performed the Real Absolute Experiment. See Appendix B for the Real Absolute Experiment questionnaire including practice sentences. Subjects were not timed, but were asked to work quickly and reminded not to reconsider earlier responses. When they were finished, they returned their questionnaires to the experimenter and were given answer sheets for the Real Relative and Novel Relative Experiments.

When all subjects had answer sheets, directions for the Real Relative Experiment were given. Subjects were told that they would hear pairs of sentences and were asked to indicate which of each pair they preferred by circling "a" or "b" on their answer sheets. They were forewarned that they might not like either, but in any case, they should indicate which of the two they preferred. A practice session followed. Afterward, the subjects' choices were discussed but, again, care was taken by the experimenter not to show approval or disapproval of their choices.

The Real Relative Experiment questionnaire was then read by the experimenter to the subjects.[8] See Appendix C for the Real Relative Experiment questionnaire including practice sentence pairs. Each

sentence was read one time and then those parts of the sentences that differed were repeated.[9] For example:

a. Bob's dog is friendlier than he used to be.
b. Bob's dog is more friendly than he used to be.
a. Friendlier.
b. More friendly.

For the Novel Relative Experiment, subjects were told that for the last part, they would hear sentence pairs that contained non-words. They were asked to treat these as if they were real words and to again indicate the sentence they preferred by circling the corresponding letter. As with the Real Relative Experiment, sentence pairs were read by the experimenter, and aspects of the pairs that differed were repeated. There was no practice session for this task. See Appendix D for the Novel Relative Experiment questionnaire.

Subjects: Subjects were 70 adult native speakers of English who were undergraduate students in classes offered by the Department of Psychology or the Department of Linguistics and Communication Disorders, Queens College of the City University of New York. Psychology students participated as part of a course requirement. Subjects were tested in two large group settings. The following were criteria for including a subject's data in the analysis:

1. Age between 17 and 50;
2. Mean rating for the Real Absolute Experiment, for all items taken together, greater than 2.65 and less than 4.00 (in order to exclude overly negative and positive subjects); and,
3. Performance as follows on the practice tests to indicate a general understanding of the task:
   a) Real Absolute Experiment: For practice sentences P1 and P4 (which had been constructed to represent perfectly standard English sentences), rated as 4 or 5; practice sentences P2 and P3 (which contained unattested forms) rated as 1 or 2;
   b) Real Relative Experiment: For Practice sentences P2 and P3 (which contrasted attested and unattested adjective forms), choice of sentences B and A, respectively.

The data of 8 subjects were excluded for failure to meet one or more of the criteria listed above, bringing the final number of subjects to 62. If these, half had received one version of the Real Absolute Experiment and half the other.

4.2.2. Results and Discussion

4.2.2.1. Real Relative and Real Absolute Experiments

For an overview of the item-by-item results of the Real Relative and Real Absolute Experiments, see Table 4.3. Note that the data reported in Table 4.3 for the Real Relative Experiment are cast in terms of the percentage of responses favoring the periphrastic comparative form. This was an arbitrary decision to which statistical analysis is indifferent; i.e., analysis outcomes would have been identical had the percentage of responses favoring the suffixed comparative form been considered instead. In fact, data cast in this form appear in parentheses on Table 4.3, but are included only for the convenience of the reader. This convention will be employed throughout.

There are two facts that are immediately striking when the data are considered. The first is the similarity in the response patterns that emerge for the Real Relative and Real Absolute Experiments. In fact, for the 32 test items taken together, there is a substantial correlation ($r = 0.91$, $p<.001$) between percent choice periphrastic (in the relative data) and the difference of suffixed and periphrastic form ratings (in the absolute data). Obviously, the two tasks tapped the same linguistic intuitions, and subjects performed consistently.

Table 4.3 **Item-by-Item Outcomes for Real Adjectives/Adult Subjects: Relative Judgments % PER (% SUF); Absolute Judgments Mean Ratings for PER & SUF**

	Relative Judgments % PER	(% SUF)	Absolute Ratings PER	SUF
MS/HF (SC)				
old	0.0	(100.0)	1.58	4.96
cold	1.6	(98.4)	2.90	4.70
short	1.6	(98.4)	1.74	4.87
long	0.0	(100.0)	1.80	4.93
MS/LF (SC)				
lax	93.5	(6.5)	4.06	2.00
sly	66.1	(33.9)	4.77	4.12
vile	98.4	(1.6)	4.58	2.22
gaunt	80.6	(19.4)	4.03	3.06
1DS/SC/HF				
little	24.2	(75.8)	1.51	2.48
simple	6.5	(93.5)	2.87	4.12
heavy	1.6	(98.4)	3.09	4.96
happy	6.5	(93.5)	3.19	4.93
1DS/SC/LF				
brittle	85.5	(14.5)	4.83	2.12
feeble	80.6	(19.4)	4.25	2.93
stingy	24.2	(75.8)	3.87	4.54
dainty	29.0	(71.0)	4.51	4.58
2DS/SC/HF				
friendly	27.4	(72.6)	4.03	4.54
narrow	12.9	(87.1)	3.87	4.61
handsome	79.0	(21.0)	4.58	2.32
bitter	98.4	(1.6)	4.29	1.54
2DS/SC/LF				
shapely	72.6	(27.4)	4.09	3.45
mellow	50.0	(50.0)	4.19	3.51
irksome	96.8	(3.2)	3.25	1.41
meager	98.4	(1.6)	3.32	1.25

	Relative Judgments % PER	(% SUF)	Absolute Ratings PER	SUF
MS/HF (SI)				
right	80.6	(19.4)	2.77	1.35
dead	87.1	(12.9)	2.54	1.67
wrong	82.3	(17.9)	2.93	1.32
whole	95.2	(4.8)	2.06	1.54
MS/LF (SI)				
void	98.4	(1.6)	2.22	1.19
fake	66.1	(33.9)	2.77	1.80
mute	80.6	(19.4)	2.80	1.67
lone	85.5	(14.5)	1.67	1.70

Note: Chi-Square analysis for Relative Judgment data revealed that percentages greater than 62.9 or less than 37.1 differ significantly from chance, $p<.05$.

PER = Periphrastic Comparative;
SUF = Suffixed Comparative.

The second striking fact is the degree of item variation exhibited among each of the three Phonological Types (described in Section 4.1.1.), even within levels of the other variables manipulated in the design. While the monosyllabic adjectives behave more or less coherently within cells defined by Frequency and Semantic Compatibility, this is not the case with respect to the other two Phonological Types. This lack of coherent behavior is particularly pronounced among the 2-disyllabic adjectives, where response patterns are quite varied. This variation suggests, at least as far as can be determined given so few items, that it may not be reasonable to make comparisons across the three Phonological Types as originally planned.

In what follows, therefore, data will be analyzed for adjectives *within* each Phonological Type. For monosyllabics, variables will be Frequency and Semantic Compatibility. For disyllabics, in addition to Frequency, comparisons will be made between adjectives with different endings within the two Phonological Types, 1-dysllabic and 2-disyllabic, resulting in an additional variable, Ending Type, which will be introduced for these adjectives. Conflation of these two groups is not possible due the difference in the number of items for each Ending Type; i.e., at each level of Frequency, two each for LE and Y adjectives and one each for LY, OW, SOME, and ER adjectives.

Given the reduced number of tokens available for analysis, it may be relevant to note that, with the exception of *mellow* (a 2DS/LF item), the choice of comparative type for the Real Relative judgments always differed significantly from chance at the level of individual items, as revealed by a Chi-Square analysis.

Monosyllabics: For the monosyllabic adjectives, the data from the Real Relative Experiment were subjected to 2 x 2 analyses of variance, with Semantic Compatibility and Frequency tracked as repeated measures in the subject-based analysis, and as non-repeated measures in the item-based analysis. The mean values are displayed in Table 4.4 below. Recall that the suffixed comparative form is predicted for monosyllabic adjectives; in fact, this prediction only obtains for semantically compatible items that have high frequency of occurrence.

Table 4.4 **Real Relative Judgments (Monosyllabics)**
Percent responses favoring periphrastic (cf. suffixed, in parentheses) forms of the comparative

	HF	LF
SC	0.8 (99.2)	84.7 (15.3)
SI	86.3 (13.7)	82.7 (17.3)

Among high frequency adjectives, Semantic Compatibility (adjective gradability) is a crucially determining factor; although the suffixed comparative form is overwhelmingly preferred to the periphrastic for semantically compatible monosyllabics, the reverse is true for semantically incompatible. However, among low frequency adjectives, the periphrastic form is consistently preferred regardless of Semantic Compatibility. This pattern is supported by a two-way interaction of Semantic Compatibility x Frequency in both subject- and item-based analyses, $F_1(1,61) = 568.46$, $p<.001$, $F_2(1,12) = 71.05$, $p<.001$.

A subanalysis exploring the breakdown of this pattern takes the three mean values for which preference for the periphrastic comparative form is indicated and asks whether these differ among themselves. In fact, no difference is indicated, $F<1$ in both analyses. This suggests that low

frequency and semantic incompatibility influence choice of comparative type equally, and that their combined effect is not cumulative.

For the ratings data resulting from the Real Absolute Experiment, 2 x 2 x 2 analyses of variance were performed. Semantic Compatibility, Frequency and Comparative Type were treated as repeated measures in the subject-based analysis; in the item-based analysis, the first two of these factors were treated as non-repeated, and only Comparative Type as repeated. The mean values appear in Table 4.5. The patterns seen in the results of the Real Relative Experiment noted above are corroborated here. Among high frequency adjectives, subjects rated suffixed comparatives higher than the periphrastic only for semantically compatible forms, with the direction of preference reversing for semantically incompatible; and suffixed comparatives were rated lower than periphrastic for low frequency forms, whether semantically compatible or semantically incompatible. This pattern is supported by a three-way interaction (Semantic Compatibility x Frequency x Comparative Type) found in both subject- and item-based analyses, $F_1(1,61) = 283.66$, $p<.001$, $F_2(1,12) = 50.73$, $p<.001$. This three-way interaction is the logical parallel of the two-way interaction (Semantic Compatibility x Frequency) found in the analysis of the more compact data of the Real Relative Experiment.

Table 4.5 **Real Absolute Judgments (Monosyllabics)**
Mean ratings for periphrastic (PER) and suffixed (SUF) forms of the comparative

	HF		LF	
	PER	SUF	PER	SUF
SC	2.01	4.87	4.36	2.85
SI	2.58	1.48	2.37	1.60

A subanalysis of all but the high frequency, semantically compatible forms, however, picked up a difference among the remaining means that was not indicated in the equivalent subanalysis for the Real Relative data. Here the greater sensitivity of the absolute judgment task proved valuable. This subanalysis compared differences between the ratings for periphrastic and suffixed forms for each adjective type (LF/SC, HF/SI and LF/SI). A difference among them was supported, albeit weakly, as indicated by a two-way interaction that held by subjects, $F_1(2,122) = 6.92$, $p<.01$, but failed by items, $F_2(2,9) = 1.32$, $p>.25$). This difference in pattern arises as a kind of "floor" effect in semantically incompatible items; given low ratings for any form of the comparative in these inherently non-gradable adjectives, subjects have limited means to express their preference for the periphrastic form, cf. no such limitation for low frequency, semantically compatible adjectives.

Summary: For the monosyllabic adjectives, the predicted preference for the suffixed form was only evident for high frequency, semantically compatible adjectives. In all other cases, the periphrastic was preferred as indicated by a greater percentage of responses choosing the periphrastic form in the Real Relative Experiment and higher ratings in the Real Absolute Experiment.

1-Disyllabics: The 1-Disyllabics are those that, like the monosyllabic adjectives, are predicted to form the comparative synthetically. As noted earlier, the newly introduced variable Ending Type has two levels for the 1DS adjectives, LE and Y. Due to the reduced number of items, only subject-based analyses were performed on these data.

Data from the Real Relative Experiment were subjected to a 2 x 2 analysis of variance with Ending Type and Frequency as repeated measures. The mean values are shown below in Table 4.6. Here we see that the suffixed comparative form is preferred for high frequency adjectives of both ending types, just as it was for semantically compatible monosyllabics. However, for low frequency forms, the periphrastic is preferred for LE adjectives, but surprisingly, given what has emerged in the analyses of the monosyllabic adjectives, not for Y adjectives. This pattern is statistically significant, supported by an interaction of Ending Type x Frequency, $F_1(1,61) = 60.01$, $p<.001$. Among instances in which descriptive grammars claim a uniform preference for the suffixed comparative form, the Y adjectives are the only adjectives where the suffixed comparative is preferred for low as well as high frequency forms.

Table 4.6 **Real Relative Judgments (1-Disyllabics)**
Percent responses favoring periphrastic (cf. suffixed, in parentheses) forms of the comparative

	HF	LF
LE	15.3 (84.7)	83.1 (16.9)
Y	4.0 (96.0)	26.6 (73.4)

A sub-analysis of the data for LE forms in the Real Relative experiment showed an effect of Frequency; the suffixed comparative form was preferred for high frequency but the periphrastic for low frequency LE adjectives, $F_1(1,61) = 229.92$, $p<.001$. Turning to the apparently more uniform Y forms, a significant effect of Frequency was also found, $F_1(1,61) = 33.03$, $p<.001$. In this instance, the frequency effect arises because the suffixed form was preferred to different extents for high

and low frequency forms, that preference extreme for the former but moderate for the latter.

For the Real Absolute Experiment data summarized in Table 4.7, a 2 x 2 x 2 analysis of variance with Ending Type, Frequency and Comparative Type as repeated measures was performed. Here we see that the pattern of preference is broadly the same as was seen in the data of the Real Relative Experiment judgments on the same items (and this is echoed here by a three-way interaction of Ending Type x Frequency x Comparative Type, $F_1(1,61) = 17.52$, $p<.001$, cf. the earlier two-way interaction).

Table 4.7 **Real Absolute Judgments (1-Disyllabics)**
Mean ratings for periphrastic (PER) and suffixed (SUF) forms of the comparative

	HF		LF	
	PER	SUF	PER	SUF
LE	2.19	3.31	4.55	2.53
Y	3.15	4.95	4.19	4.56

Considering the LE adjectives only, the pattern of ratings for the suffixed and periphrastic comparatives of the high frequency adjectives differs from that of the low frequency adjectives. This is supported by an interaction of Frequency x Comparative Type, $F_1(1,61) = 79.98$, $p<.001$. In still more detailed analyses, the absolute ratings for LE adjectives show significantly higher ratings for high frequency adjectives appearing in suffixed as opposed to periphrastic comparative form, $F_1(1,61) = 13.69$, $p<.001$, and the reverse for low frequency adjectives, $F_1(1,61) = 95.49$, $p<.001$.

However, it is interesting that neither the suffixed nor the periphrastic form has a high average rating for the high frequency LE adjectives. This results from the markedly low ratings given to both comparative forms of the individual item *little* (see Table 4.3 above).[10] Therefore, it is difficult to make a generalization regarding LE adjectives; clearly this adjective type deserves further study with a larger number of test items.

An interaction of Frequency x Comparative Type was also found for the Y adjectives, F_1 (1,61) = 34.00, p<.001. This is attributable to a greater differential between suffixed and periphrastic comparatives in high frequency adjectives than in their low frequency counterparts. Note that these low frequency Y adjectives attract quite high ratings for both comparative forms. Exploring further, additional sub-analyses of the Y forms show significantly higher ratings for suffixed as opposed to periphrastic comparatives for high frequency adjectives, $F_1(1,61)$ = 78.27, p<.001, and, to a lesser degree, for low frequency adjectives as well, $F_1(1,61)$ = 4.98, p<.05. These findings accord with those for the Real Relative Experiment data.

Summary: The prediction that 1-disyllabic adjectives have synthetic comparative forms held true for Y disyllabic adjectives, although low frequency Y adjectives in both the suffixed and periphrastic comparative form were given high ratings. For the LE adjectives, however, a preference for the suffixed comparative was only indicated for high frequency adjectives; perhaps idiosyncratically, the item *little* attracted very low ratings in both comparative forms.

2-Disyllabics: Recall that 2DS adjectives are claimed to have both comparative options available. For these adjectives, there are four levels of Ending Type: LY, OW, SOME and ER. Again, due to the reduced number of items (one per cell), no item-based analyses were possible. Data are summarized in Table 4.8.

Table 4.8 **Real Relative Judgments (2-Disyllabics)**
Percent responses favoring periphrastic (cf. suffixed, in parentheses) forms of the comparative

	HF	LF
LY	27.4 (72.6)	72.6 (27.4)
OW	12.9 (87.1)	50.0 (50.0)
SOME	79.0 (21.0)	96.8 (3.2)
ER	98.4 (1.6)	98.4 (1.6)

The variability among the four ending types is clear in these relative judgment data. No two behave alike. The suffixed comparative form is preferred only for high frequency LY and OW adjectives. However, while the LY low frequency adjective is preferred in the periphrastic form, subjects show no comparative type preference for the OW low frequency adjective, choosing the suffixed and periphrastic forms equally often. In fact, these data (for the item *mellow*) are the only relative judgment data supporting the prediction that 2DS adjectives have both comparative options available. While all SOME and ER adjectives were preferred in the periphrastic comparative form regardless of frequency, the high frequency ER adjective showed a stronger periphrastic preference than did the high frequency SOME adjective. This high degree of variability is supported in the analysis of variance by a two-way interaction of Ending Type x Frequency, $F_1(3,183) = 10.98$, $p<.001$.

A sub-analysis for the LY adjectives showed a significant difference between high frequency and low frequency forms, subjects preferring the suffixed comparative for the high frequency and the periphrastic for the low, $F_1(1,61) = 26.28$, $p<.001$. The OW adjectives also showed sensitivity to adjective Frequency, $F_1(1,61) = 35.97$, $p<.001$, although here the suffixed form preference for the high frequency item simply disappeared, rather than reversing, for the low frequency item.

SOME adjectives showed a difference in comparative form preference as a function of Frequency, the periphrastic being chosen more often for the low frequency item than for the high, $F_1(1,61) = 10.78$, $p<.001$; however, for both items, subjects preferred the periphrastic form to the suffixed, and the difference lay only in the strength of that preference. Finally, the two ER adjectives showed an even stronger leaning toward the periphrastic, and did so across the board, $F<1$. Since the periphrastic form was chosen 98.4% of the time for both, it may be the case that subjects reject the suffixed form, because of an aversion to *-erer* endings.

For the Real Absolute data summarized in Table 4.9 below, a 4 x 2 x 2 analysis of variance (with Ending Type, Frequency and Comparative Type as repeated measures) was performed. Here a three-way interaction of Ending Type x Frequency x Comparative Type was found, supporting the findings for the Real Relative Experiment, $F_1(3,180) = 6.25$, $p<.001$.

Table 4.9 **Real Absolute Judgments (2-Disyllabics)**
Mean ratings for periphrastic (PER) and suffixed (SUF) forms of the comparative

	HF		LF	
	PER	SUF	PER	SUF
LY	4.03	4.55	4.10	3.45
OW	3.87	4.61	4.19	3.52
SOME	4.58	2.32	3.26	1.42
ER	4.29	1.55	3.32	1.26

Sub-analyses of the Real Absolute data for the LY and OW adjectives broadly supported the earlier results for these same items: a significant interaction of Frequency x Comparative Type was found for the LY adjectives, $F_1(1,60) = 6.95$, $p<.05$, as well as for the OW adjectives, $F_1(1,60) = 11.90$, $p<.001$. Notice, however, that although the Real Relative Experiment indicated no comparative preference for the low frequency OW adjective, absolute ratings are higher for the periphrastic than the suffixed comparative.

For the SOME adjectives, the absolute judgment task again proved to be an instrument with sensitivities differing from those of the relative judgment task. While the Real Relative data showed a difference between comparative form preference for high and low frequency SOME adjectives (although the periphrastic was preferred in both cases), the Real Absolute data showed no evidence of an interaction of Frequency and Comparative Type, $F<1$. The preference for the periphrastic comparative was here not smaller for the high frequency SOME adjective than for the low. Finally, for the ER adjectives, the Real Absolute data showed no reliable interaction of Frequency x Comparative Type, $F_1(1,60) = 3.30$, $p>.05$; for both items, the suffixed comparative form (with its -erer ending) attracted very low ratings.

Summary: The 2DS adjectives were predicted to have both comparative options available. In fact, this is only partly true. The findings suggest (and no more than that, given the low number of items) that for all except the ER adjectives and perhaps the SOME adjectives, frequency of occurrence may be a factor in comparative choice.

A preliminary interpretation of the results of the Real Relative and Absolute Experiments suggests that since Frequency is a factor, it is highly unlikely that comparative suffixation is rule-generated.
The Novel Relative Experiment was designed to see if Phonological Type was a salient factor for comparative choice. The results of that experiment are now discussed.

4.2.2.2. Novel Adjective Experiment

The item-by-item results of the Novel Relative Experiment are listed below in Table 4.10 (cf. Table 4.3 earlier, for real words). Note that, as in the earlier experiment, Chi-Square analysis establishes limits by which it can be readily determined which preferences reach significance for individual items. In the table below, values in boldface are those reaching significance, $p<.05$.

Table 4.10 Item-by-Item Outcomes for Novel Adjectives/Adult Subjects: Relative Judgments: % PER (% SUF)

		%PER	(%SUF)
MS	sant	59.7	(40.3)
	sturt	56.5	(43.5)
	sall	43.5	(56.5)
	zelk	40.3	(59.7)
1DS:	kittle	50.0	(50.0)
	rupple	56.5	(43.5)
	dempy	**22.6**	**(77.4)**
	rilty	**35.5**	**(64.5)**
2DS:	puttly	**35.5**	**(64.5)**
	dillow	40.3	(59.7)
	felsome	**64.5**	**(35.5)**
	fumper	**72.6**	**(27.4)**

A striking difference between these data for novel adjectives and those for real adjectives lies in the absence of secure preferences for one form of the comparative or the other for the current data. For 7 out of 12 novel adjectives (cf. only 1 out of 32 real adjectives), no preference is indicated.

Monosyllabics: Recall that although monosyllabic adjectives were predicted to take the comparative suffix, data from the Real Relative and Absolute Experiments indicated that this was true only for high frequency, semantically compatible monosyllabics. For their low frequency counterparts, and for all semantically incompatible (non-gradable) adjectives regardless of frequency, the periphrastic comparative was preferred.

In contrast to these earlier findings, for the novel monosyllabic adjectives, subjects showed no preference for either comparative type. The mean percent choice of periphrastic across items was 50% - exactly

at chance. Although there was some minor variation among the four test items, no preference was evident at the level of individual adjectives either, as demonstrated by the Chi-Square analysis.

Since a novel word might be construed as a special case of low frequency words, the question arises as to whether subjects treat these similarly. Table 4.11 below is designed to illustrate the already obvious point, and that is, that the percentage of periphrastic choice is quite different for novel monosyllabics and their real, low frequency counterparts (whether semantically compatible or semantically incompatible). In the case of monosyllabics, then, novel adjectives are *not* treated in the same way as real adjectives of low frequency.

Table 4.11 **Novel vs. Low Frequency Monosyllabics**
Mean percent responses favoring periphrastic (cf. suffixed, in parentheses) forms of the comparative

Novel	LF (SC)	LF (SI)
50.0 (50.0)	84.7 (15.3)	82.7 (17.3)

1-Disyllabics: Recall that 1DS adjectives were predicted to form the comparative by suffixation of *-er*. For the real adjectives, the suffix was preferred for high frequency LE adjectives and for Y adjectives regardless of frequency.

Results of the Novel Relative experiment showed no preference for either comparative type for the two 1DS adjectives ending in *-le*. No preference was indicated for either item in the Chi-Square test. Table 4.12 below documents the different patterns of preference for novel LE adjectives

and their real, low frequency counterparts. As with the monosyllabics, low frequency and novel forms are not treated similarly.

Table 4.12 **Novel vs. Low Frequency 1-Disyllabics: LE Forms**
Mean percent responses favoring periphrastic (cf. suffixed, in parentheses) forms of the comparative

Novel	LF
53.3 (46.7)	83.1 (16.9)

On the other hand, subjects did show a significant preference for the suffixed comparative form for each of the two novel adjectives ending in -y. Furthermore, when these judgments are compared to those made for real, low frequency Y adjectives, we see that low frequency and novel forms are treated similarly. See Table 4.13.

Table 4.13 **Novel vs. Low Frequency 1-Disyllabics: Y Forms**
Mean percent responses favoring periphrastic (cf. suffixed, in parentheses) forms of the comparative

Novel	LF
29.1 (70.9)	26.6 (73.4)

2-Disyllabics: 2DS adjectives are those predicted to allow both types of comparative forms. However, data from the Real Relative and Absolute Experiments found considerable variation among the four 2DS subtypes (albeit interpretation was reined in because of low item numbers). Variation is again a feature of the data in the Novel Relative Experiment. Although both comparative options are predicted to be available, reliable preferences were observed for all but the OW adjective, as indicated by Chi-Square analysis: the LY novel adjective

was preferred in the suffixed comparative form, and the SOME and ER novel adjectives, in the periphrastic.

Table 4.14 below is constructed to allow a comparison between preference patterns for novel and low frequency forms for each of the four adjective subtypes. For reasons that will become clear, two comparison standards are offered for the case of the novel LY adjective, *puttly;* these are the low frequency forms of 2DS with LY, and those for 1DS with Y.

Table 4.14 **Novel vs. Low Frequency 2-Disyllabics**
Mean percent responses favoring periphrastic (cf. suffixed, in parentheses) forms of the comparative

	Novel		LF	
LY	35.5	(64.5)	72.6	(27.4)
			1DS Y: 26.6	(73.4)
OW	40.3	(59.7)	50.0	(50.0)
SOME	64.5	(35.5)	96.4	(3.6)
ER	72.6	(27.4)	98.4	(1.6)

The LY novel adjective is preferred in the suffixed comparative form and on that evidence is not treated the same as its intended real, low frequency counterpart, which is preferred in the periphrastic. But, the preference pattern for novel LY forms might equally well be compared with that for low frequency Y forms; it could be claimed that, in the case of novel forms, subjects justifiably treat and intended *X+ly* as if it were *X1+y* (whether morphologically complex or not). And indeed the preference pattern for *puttly* corresponds to the suffixed comparative preference of this second alternative.

Judgments for both novel and low frequency OW adjectives show no comparative form preference. Both SOME and ER nonsense forms are preferred in the periphrastic comparative, though the preference is notably less sharp that that of their low frequency counterparts in both instances.

Summary: Results in the Novel Relative Experiment largely support the findings of the Real Relative and Real Absolute Experiments with respect to variability within conventionally defined Phonological Types and the subsequent conclusion that the three-way categorization of adjectives as monosyllabic, 1-disyllabic, and 2-disyllabic does not capture the distributional facts. No preference for either comparative type was indicated for the novel monosyllabic adjectives. Within 1-disyllabics, no comparative preference was shown for novel LE adjectives while novel Y adjectives were preferred in the suffixed comparative form. Among 2-disyllabics, a novel form in LY, perhaps analyzed as a form in Y, was preferred in the suffixed comparative, those for SOME and ER were preferred in the periphrastic and, no preference was indicated for the OW adjective. The most extreme preferences were shown for Y and ER adjectives, which is not surprising given the findings for the real adjective counterparts of these types.

Novel words are considered in previous work to provide a litmus test for the application of a productive lexical rule. The findings of the Novel Relative Experiment show little indication that a comparative lexical rule of any sort is in operation. It was not clear, however, whether the lack of comparative preference where no preference emerges was indicative of the lack of a productive rule or was simply an artifact of the relative judgment task. That is, novel forms have been used often in

elicited production tasks because they preclude the possibility that a subject may have witnessed them in the input. However, in this task subjects were being asked to choose between two forms. It is quite possible that, since both alternatives being given were for a base adjective they had never before heard, subjects were prompted to view both comparative options as possible. It could be argued that if subjects had instead been asked to produce a comparative form, a preference would have been revealed.

In addition, subjects had no way of knowing whether or not novel adjectives were gradable, or semantically compatible, with the notion of comparison. Whether or not a novel adjective is believed to be gradable might have implications for comparative formation. The effect of gradability in the formation of the comparative will be discussed in Chapter 7, but here the concern is that subjects' performances might have been confounded by their lack of knowledge with respect to the gradability of the novel adjective.

In an effort to see if these two factors influenced subjects' performances, the same novel adjectives were used in a two-part follow-up study. That study is outlined below.

4.3. Novel Adjectives: A Follow-Up Study

4.3.1. Method

Materials and Design: The same 12 novel adjectives were presented in the same order as in the original Novel Relative Experiment. Most of the same 12 filler adjectives were also used; however, some variation from the original 12 fillers occurred due the nature of the task.

Part I used a Cloze Task and will be referred to as the Novel Cloze Experiment. Test sentences included *than* phrases to elicit comparison. In order to indicate to subjects that novel adjectives were gradable, an intensifier was included (e.g., *very, extremely, etc.*) in the preamble. Also, an attempt was made to bias the sentences toward a positive, as opposed to negative, comparative (*more dempy/dempier* vs. *less dempy*), although it seemed impossible to insure this. An example illustrates the task; note that instructions are to "fill in the blank" in the item's second clause/sentence.

My favorite TV show is very **dempy**,
but your favorite is a good deal ^^^ than mine.

Part II used an absolute judgment task and will be referred to as the Novel Absolute Experiment. Test and filler sentences from the Novel Cloze Experiment, presented in the same order, appeared with the blanks filled in. In the test sentences, adjectives appeared in either the suffixed or periphrastic comparative form. As with the Real Absolute Experiment, items were distributed in a counterbalanced design to form two versions, each of which was seen by half of the subjects, so that subjects would not encounter repeated materials.

Each test and filler sentence appeared with a scale ranging from 1-5 beneath it. A sample follows:

My favorite TV show is very dempy,
but your favorite is a good deal dempier than mine.

1	2	3	4	5
sounds terrible				sounds fine

Complete questionnaires for the Follow-Up Novel Experiments (Cloze and Absolute) appear in Appendix E.

Procedure: All materials were presented in written form. For the Novel Cloze Experiment, subjects were asked to fill in the blanks above the carats with some form of the novel word that appeared in bold face type. They were told that they could use as many words as they liked, but some form of the bold face word should appear in their answer. They were also told that in each case more than one appropriate answer was possible. Subjects then did two practice items and these were discussed; the experimenter took care to treat all answers as acceptable. Instructions were then given for the Novel Absolute Experiment. Here, subjects were told that they would read the same sentences from the first part, but here the blanks were already filled in. They were instructed to rate these sentences by circling the appropriate number on a 5-point scale where 1 was defined as "sounds terrible", 5 was defined as "sounds fine" and 2, 3, and 4 were described as "somewhere in between". A practice session followed and answers were discussed, again with care taken not to show approval or disapproval of individual answers. Subjects were not timed but were asked, for both parts of the experiment, to work as quickly as possible. Since more than one item appeared on a page, they were also asked not return to an item once it was completed. The Novel Cloze Experiment questionnaire was then distributed and when subjects were finished, they returned it to the experimenter and received the questionnaire for the Novel Absolute Experiment.

Subjects: Subjects were 16 native speakers of English between the ages of 20 and 50 who were first year graduate students. No other criteria for inclusion applied.

4.3.2. Results and Discussion

4.3.2.1. Novel Cloze Experiment

Table 4.15 below summarizes the distribution of cloze responses, and shows the frequencies with which responses fell into analysis categories that capture the major patterns evident in these data.

It is interesting to note that 71.9% (N=138) of the total number of cloze responses are "pure" periphrastic (PER) or suffixed (SUF) comparatives based on the novel adjective, as given. However, 16.1% (N=31) of the total responses (the large majority of these (N=26) appearing with monosyllabics) represent another form of the suffixed comparative, one in which *-er* attaches to a base which has itself taken a *-y* affix (e.g., *santier, zelkier,* and even *dillowier*).

Table 4.15 Distribution of Cloze Responses for Novel Adjectives

MS	sant	sturt	sall	zelk
more X (PER)	1	5	2	3
X-er (SUF)	4	6	6	4
X-ier	5	5	8	8
other	6	-	-	1

1DS	kittle	rupple	dempy	rilty
more X (PER)	7	9	1	4
X-er (SUF)	3	4	13	12
X-ier	1	3	-	-
other	5	-	2	-

2DS	puttly	dillow	felsome	fumper
more X (PER)	3	9	11	5
X-er (SUF)	13	6	5	2
X-ier	-	1	-	-
other	-	-	-	9

In addition, "other" responses comprised 12% (N=23) of the total and are a mixed set. Notably, among these responses, 10 involved use of a *-y* suffix in one way or another: in a negative comparative (e.g., *sant: less santy*), a double comparative (e.g., *sant: more santier*), and a deletion of some part of the given form (e.g., *fumper: fumpier*). If these instances are put together with responses of the form *X-ier* already mentioned, a striking observation emerges: affix *-y* intrudes in cloze responses more than 20% of time. Setting aside cases with *-y* intrusion, the remaining "other" responses can be said to be made up of negative rather than positive responses (e.g., *less zelk*), noncomparatives (e.g., *kittled*) sometimes involving distortion of the given form (e.g., *fump*), comparatives involving the intrusion of other affixes (e.g., *more santful, santlier*), and so on.

Monosyllabics: An interesting feature of the data here is the high rate of avoidance of "pure" PER or SUF responses in favor of responses in which the base is first modified by affixation with *-y*. This might be interpreted as a disinclination to accept as adjectives forms that are not marked as such by means of some derivational adjectival ending. This is not so odd when one considers that many new adjectives are derived from new verbs and nouns via suffixation. (In all but one response here involving *-y*, the final product has the form *X-ier*.) Among "pure" comparative responses, there are more suffixed than periphrastic responses overall, but this is not significant ($p>.05$) by Chi-Square test.

1-Disyllabics: In the monosyllabic data discussed above, in cases where subjects affixed *-y* to the novel monosyllable, they displayed an overwhelming preference for the suffixed comparative once *-y* was affixed. Direct assessment of Y novel adjectives confirms this observation with 83.3% of pure comparative responses taking the suffix. The data are strong enough here to reach significance in the Chi-Square test for each of the test items considered individually, $p<.05$. For LE forms, in contrast, a slight preference for the periphrastic is indicated, but is not significant.

2-Disyllabics: Among the 2DS novel forms, only *puttly* showed a comparative preference, and it was for the suffixed form. This is plausibly no more than another instance of an unintended analysis of *-ly* as *-y*, as discussed earlier.

Summary: Essentially, data from the Novel Cloze Experiment show a huge suffixed comparative preference for Y 1DS novel adjectives. In addition, subjects indicated a rejection of bare forms as inherently adjectivelike and modified these by affixing the adjectival suffix *-y*.

4.3.2.2. Novel Absolute Experiment

Item-by-item ratings for novel adjectives are displayed in Table 4.16 below.

Table 4.16 Item-by-Item Outcomes for Novel Adjectives/Adult Subjects: Absolute Judgments: Mean Ratings for PER and SUF

		PER	SUF
MS	sant	4.13	3.63
	sturt	4.88	3.75
	sall	4.13	4.63
	zelk	3.75	3.25
1DS	kittle	4.63	3.36
	rupple	4.75	2.63
	dempy	4.25	5.00
	rilty	3.75	5.00
2DS	puttly	3.75	4.75
	dillow	4.63	3.00
	felsome	5.00	2.88
	fumper	3.88	2.13

These data indicate how accepting subjects are of both forms of the comparative. For all but 3 test forms (*rupple*, *felsome* and *fumper*), ratings are at the mid-point or above of the 5-point rating scale. The exceptions involve suffixed forms exclusively, and except perhaps for *fumper*, these are not notably low ratings.

Monosyllabics: Data from the Novel Cloze Experiment suggested no comparative form preference for the novel monosyllabic adjectives. This finding is supported here as both comparative forms are rated fairly high for each monosyllabic novel adjective.

1-Disyllabics: The preference for the suffixed comparative form for Y adjectives is evident in the absolute ratings for these forms, which are at ceiling. Note, however, that high ratings are also given for the periphrastic forms. For LE adjectives, ratings are higher for the periphrastic than for the suffixed form, and the suffixed forms of the LE adjectives are rated lower than the suffixed forms of the Y adjectives.

2-Disyllabics: For the 2DS adjective *puttly*, higher ratings are given for the suffixed comparative form. But for all other 2DS adjectives, it is the periphrastic that is rated higher. These findings confirm the observations made regarding 2DS adjectives for the Novel Cloze Experiment data with the exception of ER adjectives.

Summary: Essentially, the results of the Novel Absolute Experiment show higher periphrastic than suffixed ratings for all but Y and LY adjectives (with the exception of the single MS item, *sall*).

4.4. Conclusion

The findings of the Real Relative and Real Absolute Experiments presented here demonstrate that Phonological Type, as defined in Section 4.1.1 above, is not a real determinant in choice of comparative type. Instead, what seems to matter is frequency of comparative form as a function of Frequency of the base and/or Semantic Compatibility. In fact, the only generalizations with respect to either Phonological Type or Ending Type that hold when Frequency is manipulated are that disyllabic adjectives ending in *-y* are preferred in the suffixed comparative form and that disyllabic adjectives ending in *-er* are preferred in the periphrastic form. The latter observation is believed to be an artifact of an aversion to *-erer* endings; the former will be addressed in Chapter 7.

Turning to the Novel Relative Experiment, there are only two cases in which subjects show a preference for the suffixed form; i.e., disyllabic adjectives ending in Y or LY (the latter presumably analyzed as the former). This finding was supported by the results of the Novel Cloze and Novel Absolute Experiments. For all other adjective types, either no

comparative type preference was indicated, or the periphrastic was preferred. In the Novel Cloze Experiments, differences in elicitation of the two comparative forms did not reach significance for any adjectives other that Y and LY disyllabics, and with the exception of these same two adjective types, ratings in the Novel Absolute Experiment were higher for the periphrastic than for the suffixed comparative form.

Results of the follow-up Novel Cloze and Novel Absolute Experiments are not entirely compatible with results of the Novel Relative Experiment. This fact, coupled with the general incompatibility of relative judgments for novel and low frequency forms, raises questions with respect to the degree of confidence with which findings regarding novel forms can be generalized to real words.

Chapter 4: NOTES

1. The claim that some adjectives have both comparative forms available can be interpreted two ways. On the one hand, it might mean that the language overall allows both forms and that a speaker's choice of one form over the other represents a dialectal or idiolectal difference. On the other hand, it might be interpreted to mean that each speaker has both options available in the mental grammar; i.e., that for a given speaker, the two forms exist in free variation. I assume here that free variation is the intended interpretation.

2. This may be more fully articulating Lakoff's (1972) claim, noted in Chapter 3, that *more* can be used with any adjective.

3. Adjectives of greater than two syllables will not be considered here. It is generally considered that only the periphrastic comparative is available for these adjectives. Exceptions such as *unhappier*, however, do exist, and can be accounted for under the proposal that will be presented in Chapter 7.

4. Drawing from a searchable electronic dictionary of approximately 32,000 English words, the following, which can be analyzed as *X+y*, were found: *airy, arty, ashy, balmy, beady, beefy, bloody, blurry, bony, bossy, boxy, brainy, brassy, breathy, breezy, briny, bronzy, buggy, bulky, bumpy, bushy, cagey, canny, chalky, chatty, cheery, choosy, choppy, chunky, classy, cloudy, crappy, crazy, creamy, creepy, crummy, dewy, dirty, drafty, dreamy, dressy, dusky, dusty, earthy, easy, edgy, fatty, faulty, filmy, filthy, fishy, flabby, flaky, flashy, fleshy, flinty, floury, foamy, foggy, folksy, foxy, frothy, funny, furry, fussy, fuzzy, gassy, gaudy, glassy, gloomy, glossy, gory, greasy, greedy, guilty, gummy, gusty, hairy, hasty, hazy, healthy, hungry, icy, jerky, juicy, jumpy, knotty, lacy, lazy, leafy, leaky, leggy, lengthy, lofty, lousy, lucky, lumpy, lusty, meaty, merry, messy, mighty, milky, minty, misty, moldy, moody, mousy, muddy, mushy, needy, noisy, nutty, owly, pasty, patchy, puffy, racy, rainy, risky, rocky, roomy, rosy, rusty, salty, sandy, scanty, scary, scratchy, screechy, sexy, shady, shaky, shiny, showy, silky, skimpy, sleazy, sleepy, sleety, slimy, sloppy, smoky, smudgy, smutty, sneaky, snotty, snowy, soapy, sooty, speedy, spicy, splashy, spongy, sporty, spotty, squashy, squeaky, starchy, starry, steamy, sticky, stinky, stony, stormy, stringy, stubby, sulky, sunny, swampy, sweaty, talky, tangy, tasty, thirsty, thorny, thrifty, throaty, trashy, warty, waxy, wealthy, weighty, whiny, windy, wintry, wiry, wispy, witty, woody, wordy, wormy, worthy, yeasty, etc.* On the other hand, fewer cannot be analyzed that way: *angry, busy, dandy, fancy, giddy, handy, happy, hardy, heavy, lanky, merry, nasty, phony, pretty, ready, sorry, sturdy, tiny, wary, weary,* etc.

5. Agentive and instrumentive *-er* derivational suffixes are, of course, not relevant as they are not adjectival.

6. Note that *rose* and *gold*, which can be used adjectivally, also have adjectival counterparts; i.e., *rosy* and *golden*. Also, given the earlier discussion regarding the failure of monosyllabic, verbally derived adjectives to have synthetic comparative forms (e.g., **rileder*), it is important to note that adjectival *rose* and *gold* are derived from nouns, albeit without any overt affix, and may be excluded on that basis.

7. Note that negation, like comparison, has both suffixed and periphrastic forms.

8. The Relative Real Experiment questionnaire was read to the subjects because a modified version of this questionnaire was used with the children and every effort was made to have the child and adult experiments resemble each other as closely as possible. The Real Absolute Experiment was performed only by adults and, in that case, administering it in written form was more efficient.

9. This was done because it was anticipated that the child subjects would need this repetition and, as noted in Note 8 above, all efforts were made to keep the adult and child tasks as similar as possible.

10. This may be an idiosyncratic fact about the adjective *little*, which perhaps competes with *small*, a broadly synonymous adjective of higher frequency (occurring, according to Francis and Kucera (1982), 542 times per million tokens, cf. 318 for *little*).

Chapter 5: Children and the Comparative

5.1. Introduction

Studies regarding the acquisition of the comparative construction in English generally focus on one or more of the following: 1) the age at which the two forms appear, as well as the order in which they do so, in children's spontaneous speech; 2) the meaning associated with children's early use of comparatives and with the lexical item *more*; 3) the elicitation of synthetic comparative forms in an effort to identify rules for forming comparatives; and, 4) the relationship between children's cognitive development and their use of comparatives. This last focus of inquiry is not addressed here; research concerned with the first three issues, however, is reviewed below. To my knowledge, no studies have attempted to establish, in the child grammar, the distribution of suffixed and periphrastic comparative forms along systematic lines (possibly phonological and/or morphological), which is the goal of the current research.

5.2. Age and Order of Appearance of Comparative Forms

It is difficult to predict the order of acquisition for the two comparative forms on theoretical grounds because of conflicting factors. As Slobin (p.c.) notes, a general "preference for free over bound forms, as well as a dispreference for unstressed and perceptually non-salient grammatical morphemes" would favor the earlier acquisition of the periphrastic comparative. However, the periphrastic is generally not used with high frequency, monosyllabic adjectives[1] and it is exactly these adjectives that, due to their frequency and lack of complexity, are most likely to appear in the child's input and provide examples of the suffixed comparative form.

Gathercole (1979, 1985), observing children's use of comparatives in spontaneous production, found that children use the suffix productively by age 3;6. *More*, on the other hand, is not used with adjectives until a year later, at around age 4;6.[2] It is sometimes used with adjectives that have also been suffixed for comparative. Some examples of such double marked comparatives that Gathercole (1985) cites are listed in Table 5.1 (Gathercole's 5, p. 93) below:

Table 5.1 Children's Spontaneous Double Marked Comparatives (Gathercole, 1985)

Rachel 4;8	That chair's *more funner* than any other chair.
Rachel 4;10	The kid's much *more older* than the baby.
Saasha 5;8	You can taste it /b/ - *more better* if you'd hold your nose. [S has just held her nose and tried a spoonful of soup.]
Brian 6;6	...you can mostly hear us, 'cause *we're more closer*...than them

Gathercole's findings regarding the order of acquisition are further supported by Blackwell (1998), who analyzed 8,000 adjectival utterances of Adam, Eve and Sarah from the Brown corpus (Brown, 1973), and found that comparative *-er* appeared before adjectival *more* (similarly, superlative *-est* appeared before adjectival *most*). Table 5.2 (a modification of Blackwell's Table 87, p. 136) shows the age and MLU at which the suffixed and periphrastic forms of the comparative first appear for each of the three children studied.

Table 5.2 First Appearance of Adjectival Comparatives (Blackwell, 1998)

	Suffixed		Periphrastic	
	Age	**MLU**	**Age**	**MLU**
Adam	2;6	2.5	3;8	5.0
Sarah	2;8	2.1	4;10	4.5
Eve	1;7	2.0	no data	

For all three children, the suffixed comparative appeared by age three and always prior to the periphrastic.

5.3. Semantics of Early Comparatives

Although children begin using the suffixed comparative by three, Gitterman and Johnston (1983), note that children first demonstrate a mature concept of comparison, i.e., "...one in which objects are related on the basis of analyzed dimensional scales, recognizing both polarity and potential serialization..." (p. 606), when they are approximately five years old (Ehri, 1976; E.V. Clark, 1972). This suggests that children initially use comparative forms in a way that differs from adult usage, possibly with no standard comparative sense.

With respect to the developing semantics of suffixed comparatives, two different investigative approaches have been taken. One approach considers developmental stages within the child; the other considers comparative interpretation across different adjectives at the same point in time in the child's development. Each are discussed below in turn.

5.3.1. Developmental Models

The Nominal Hypothesis

H. Clark (1970), responding to Donaldson and Wales's (1970) finding that young children equate *more* with *less*, proposed a three stage model of comparative acquisition. He identified an initial stage where children interpret *more* and *less* as "having extent"; i.e., both mean "a quantity of" or "some". Clark explained this interpretation in the following way:

> A question people might commonly ask a child is "Do you want more food?"...To the child,... the question can only mean "Do you want *some* food?" The child probably encounters *less*, too, in elliptical utterances; for example, "I have more food, and you have less." He would interpret *less* also as "some" since it occurs as a single "adjective" modifying food. This would explain why *more* and *less* are treated synonymously..." (p.272-273)

In Stage 2, children "...assume that the notion of "having extent" is best exemplified by the object having the most extent. As a consequence, when asked to choose the tree with *more*, or *less*, apples on it, the child will point to a tree with more, because it best exemplifies to him 'a tree with some apples on it'" (p. 273). Finally, in Stage 3, *more* and *less* are used with their true comparative meaning.

Clark hypothesized the same sequence for *Adj+er*. He noted that in spatial adjective pairs that represent polar opposites, one member of the pair is marked and the other unmarked. For example, in the pair *long* and *short*, *long* is the unmarked form (cf. *How long is it*? (neutral) vs. *How short is it*? (implies it is not long)). The unmarked form, therefore, can be thought of as having a nominal interpretation, in this case, "of the dimension length". Citing Donaldson and Wales's (1970) observation that a base adjective is implicitly comparative[3], the unmarked form, then, has both a nominal and contrastive use, "longer than average", while the marked form can only be used contrastively. In Stage 1, however, the comparative adjectives is interpreted only nominally; i.e., as being equivalent to the noun that names that property or dimension of the adjective. For the present example, both *longer* and *shorter* mean "having length".[4] Since the nominal form represents extension and not lack of extension, Clark hypothesized that in Stage 2, both comparative adjectives are used to refer to the extended, or positive end of the scale. That is to say that *longer* and *shorter* both mean "having length"; "having length" means "longer" (extension); so *longer* and *shorter* both mean "longer". Finally, at Stage 3, each comparative adjective is applied to its appropriate end of the scale (*longer* = "longer"; *shorter* = "shorter").

Clark's model predicts that prior to Stage 3, children should demonstrate a bias for positive polarity items. Subsequent research, as noted by Johnston (1985), has yielded mixed evidence. While some

researchers have reported a bias toward positive forms (e.g., Bartlett, 1976; Ehri, 1976; Townshend, 1976;), others reported a bias toward negative polarity forms (e.g., Eilers, Oller and Ellington, 1974) and some researchers claimed to find no evidence of a polarity effect (e.g., Carey, 1978; Coots, 1975). In addition, there seems to be little support from within-subject error analyses suggesting either that negative terms were consistently interpreted positively or that polarity is learned after dimensional aspects of meaning. Johnston concludes that Clark's hypothesis lacks experimental support.

The Simple Hypothesis

The lack of a demonstrated positive polarity bias, by extension, argues against a nominal interpretation for comparative adjectives. More consistent with the research is a two stage model where in Stage 1, comparative adjectives are equivalent to their corresponding simple adjectives; e.g., *longer* means *long* and *shorter* means *short*. True comparison emerges in Stage 2. This model was proposed by Ehri (1976), who tested 40 children, age 4;0 to 8;0, on two tasks that examined children's comprehension and production of comparative adjectives. In the first, which tested children's comprehension, subjects were shown four pictures each of which showed five otherwise identical objects that were arranged by size. Subjects were then shown a cut-out of the middle object and asked questions regarding its size in relation to that of the other objects. Four forms were tested: affirmative and negative comparatives (e.g., *bigger than, not bigger than*) and affirmative and negative equatives (*e.g., as big as, not as big as*), and the only adjectives used were *big* and *little*. In the production task, subjects were given first three, then all five, of the objects pictured. Subjects were then asked how each member differed from the rest of the set, in an effort to elicit comparative adjectives.

The comprehension task showed that for comparatives, children performed better on the affirmative than the negative comparatives. However, 63% of the errors for negative comparatives involved the children's failure to include the same-sized object when choosing those objects from the picture that the cut-out was "not bigger than". Once these errors were ignored, there was no real difference in performance between affirmative and negative comparatives. On the other hand, 61% of the errors for the affirmative comparatives were due to subjects selecting only the one extreme object. According to Ehri, this "...suggests that *Ss* were ignoring the standard and interpreting the form as an absolute descriptive (i.e., 'big')" (p. 379). Ehri's claim that early comparatives are interpreted absolutely (or simply) as opposed to nominally, is consistent with the fact that she additionally found no polarity effect.[5]

Results of the production task were varied, but it was evident that many subjects did not distinguish between *big* and *bigger*. It is interesting that of the subjects who performed poorly with respect to comprehending affirmative comparatives (as defined by only getting 0-2 of the 4 test items correct), most, i.e., 9 out of 11, produced this form. On the other hand, of those subjects who failed to produce comparatives, 2 out of 6 demonstrated comprehension problems. Ehri interprets this as indicating "...that children may produce comparative forms even though they do not comprehend their full meanings" (p. 380). That is, production does not indicate comprehension.

The Intensive Hypothesis

Gathercole (1979, 1983) notes that children tend to choose extremes in response to questions involving *Adj+er* (Ehri, 1976) as well as in response to questions involving *very Adj* and *sort of Adj* (Berndt and Caramazza, 1978). This suggests that another possible early comparative interpretation may be an intensive interpretation. As with the simple

adjective interpretation, no relational notion is required.

An Alternative View

Gathercole (1983), however, also claimed evidence that children's early comparative adjectives are not limited to merely simple or intensive interpretations. Studying spontaneous production data, she found that while these interpretations were supported, children's comparative uses extend beyond them.

She considered instances of *X-er* (where *X = Adj*) and *too X* (which is also claimed to have simple (*X*) and intensive (*very X*) interpretations) by examining the non-linguistic contexts in which these are used as well as their range of usage. She found that children have knowledge about *X-er* that distinguishes it from *X* and *very X*.

Uses where the suffixed comparative seems to have a simple interpretation include those where it appears either with or without a *than* phrase when no standard seems to be implied. For example, Gathercole cites Rachel's "Hey! I got two prettier shirts!" at age 3;6 (where she was only talking about two shirts and there was no likely standard to which they were being compared) and her "My shoes are littler than my feet" at age 3;2 (where, when questioned if they would fit her, said that they would). In the second example, Gathercole interprets *than* as meaning "like". Furthermore, *X-er* shares distributional privileges with *X* and *very X* in Gathercole's data. All occur with *to VP* and *enough*, and *than* phrases occur with *X* as well as with *X-er*. However, at the same time, children demonstrate correct use of comparatives as well.

In analyzing the full range of usage of X-er, Gathercole notes that there are elements of meaning that recur in mature and immature comparative uses. These are listed in Table 5.3 below (from Gathercole's (10), p. 185).

Table 5.3. Meaning Components of the Comparative (Gathercole, 1983)

(a) X (A)
(b) very X (A)
(c) used in considering two (sets of) objects, A and B
(d) -X (B)

According to Gathercole, (a) and (b) are evident in the simple and intensive uses. The "A is X like B" use reflects a combination of (a) and (c), and the combination of (a), (c) and (d) are reflected in uses that can be interpreted as "A is X-er, B is not X-er" and "A is X-er, B is Y-er" where *X* and *Y* are opposites. Gathercole argues that the simultaneous occurrence of all of these uses in children's speech suggests an account of acquisition where "...the child initially stores one (prototypical) or more (haphazard) exemplars of occurrence of the form in question, and that he or she productively extends the application of that form to new referents on the basis of the properties exemplified in the one or more exemplars" (p. 194).

5.3.2. Variability Across Adjectives

Nelson and Benedict (1974) found that even children who did have the concept of comparison varied in their ability to apply it, depending on the type of adjectival attribute in question. In their study, Nelson and Benedict classified adjectives as absolute, contrastive or relative. They identified *absolute adjectives* as those which denote a property that either is or isn't indicated by the entity (e.g., *striped, round, red*); these adjectives have no lexicalized opposites, so that lack of the property must be indicated by *un-* or *not*. *Contrastive adjectives* are members of pairs that represent ends of a continuum, but the absence of one does not entail the presence of the other; i.e., a middle ground

exists (e.g., *happy/sad*). *Relative adjectives* differ from *contrastive* in that their application is always relative to some standard (e.g., *big/little*).

Nelson and Benedict tested children, age 3;10 to 6;7, on comprehension of standard and comparative forms for the three types of adjectives identified. In the standard case, subjects were shown pairs of pictures, one of which displayed some attribute and one of which did not; for example, a tree with leaves and a leafless tree, respectively. In this particular case, subjects were then asked to point to the *leafy* tree. In the comparative case, the pictures in each pair contrasted with respect to the degree to which the attribute was present; in this example, a tree with many leaves and a tree with few leaves, and subjects were asked to point to the *leafier* tree. Errors and response times were recorded. Errors were analyzed in terms of proportions. Table 5.4 (Nelson and Benedict's Table I, p. 338) reports overall proportion of errors; Table 5.5 (their Table II, p. 339), reports mean latency of response.

Table 5.4 Proportion of Errors Within Adjective Types (Nelson and Benedict, 1974)

	Relative		Contrastive		Absolute		Total	
	Stan.	Comp.	Stan.	Comp.	Stan.	Comp.	Stan.	Comp.
4-year-olds (n = 10)	0.30	0.34	0.12	0.32	0.15	0.18	0.22	0.30
5-year-olds (n = 14)	0.16	0.18	0.09	0.11	0.19	0.12	0.12	0.14
6-year-olds (n = 10)	0.05	0.05	0.02	0.08	0.02	0.05	0.04	0.06
Total (n = 34)	0.17	0.19	0.08	0.16	0.09	0.12	0.13	0.16

Table 5.5 Mean Latency of Response (in sec.) by Adjective Type and Age (Nelson and Benedict, 1974)

	Relative		Contrastive		Absolute		Total	
	Stan.	Comp.	Stan.	Comp.	Stan.	Comp.	Stan.	Comp.
4-year-olds (n = 10)	1.72	1.72	1.88	1.94	1.91	1.86	1.80	1.81
5-year-olds (n = 14)	1.61	1.74	1.58	2.05	1.77	2.20	1.56	1.82
6-year-olds (n = 9)	1.52	1.48	1.53	1.87	1.65	2.49	1.51	1.83
Total (n = 33)	1.62	1.67	1.66	1.97	1.78	2.18	1.62	1.82

More errors were made on the comparative than on the standard adjectival forms. However, there was a greater increase of error between these two forms for the contrastive adjectives. The latency data show that both standard and comparative relative adjectives are processed at a rate equivalent to that for the contrastive and absolute adjectives in their standard forms. Nelson and Benedict interpret the latency data as indicating a "...special cognitive difficulty associated with the comparative forms of the contrastive and absolute adjectives which is not associated with the comparative forms of the relative adjectives" (p. 339). Nelson and Benedict concluded that adjective types are processed differently and, further, that

> ...what is not at issue is the child's ability to make comparisons or to use terms in a relative sense. Nor does the comparative element "-er" appear to be an element with a simple grammatical or lexical feature structure in terms of the way it is understood by children; rather, it appears to signify different operations depending on its context. (p. 341)

Gitterman and Johnston (1983) raise two issues with respect to some of the research described above. First they reject Nelson and Benedict's conclusion that adjective type affects children's performance in comprehending comparatives, arguing that adjective type boundaries are rarely clear-cut. Furthermore, they argue that Nelson and Benedict cannot account for variation that has been noticed within a particular category (cf. Bartlett (1976), who found that *wide* is acquired later in a relative sense than *long* or *tall* though all are relative adjectives). Gitterman and Johnston, searching for other factors that could account for variability in acquisition, consider absolute frequency of an adjective, but reject that as the source of variation because the adjectives used in developmental studies are of approximately equal frequency and are all fairly frequent. Instead, they pursue the question of whether the mode and number of perceptual cues available when analyzing the presence of an attribute could be a factor. They hypothesize that attributes based upon both visual and tactile cues (e.g., *wet*) will be produced earlier than attributes based on either visual (e.g., *clean*) or tactile (e.g., *soft*) cues alone.

Second, Gitterman and Johnston, noting Ehri's (1976) finding that children produce comparatives prior to having a mature concept of comparison, raise the issue of the nature of pre-comparative meanings of comparative adjectives. Citing Bloom, Lightbown and Hood's (1975) argument that children pay more attention to dynamic than static states (e.g. a balloon being blown up vs. a balloon already inflated) and extending it to comparatives, they hypothesize that children might comment upon dynamic change of state before they comment on a static state. They note that comments on a change of state involve

> ...not only changes of state, but also comparative processes that are qualitatively different from those involved in static events. In the dynamic task, children need only to recognize that the quantity is changing and to note the direction of change, while in the static task children must simultaneously hold in mind at least three points on the attribute continuum. They must make discrete estimates of quantity for each of two separate objects and relate these quantities to one or the other focused extreme. (p. 608)

Gitterman and Johnston conducted an experiment designed to test both the perceptual cues and dynamic/static hypotheses. Subjects were 30 children, ages 4;5 to 7;9, who were asked to perform two adjective production tasks, one static and one dynamic. In the static adjective production task, subjects were shown three items representing the attribute continuum. For example, consider the attribute *wet*. The object that best exemplified the attribute in question was described by it: *This is wet*. Then the experimenter placed the other two objects on the table and said, "These are not wet, but how are they different from each other?" in an attempt to elicit the comparative of *dry*.[6] Test adjectives represented different perceptual cues. Tactile adjectives included the pairs *soft/hard* and *light/heavy*; visual adjectives were *tall/short* and *clean/dirty*; and combination cues were represented by *wet/dry* and *smooth/rough*.

In the dynamic task, subjects helped the experimenter manipulate materials; for example, spraying an object with water to make it *wetter*. Simultaneously, subjects were asked "What is happening? How is it getting?" in an attempt to elicit comparatives. Test adjectives included the pairs *tall/short, long/short, wet/dry,* and *heavy/light*.

Subjects were divided into three age groups: 5-, 6- and 7-year-olds. Results indicated that the dynamic task was significantly easier than the static across all age groups, but the difference was greatest for the 5-year-olds. In addition, tactile and visual cue test items were easier than those with combination cues, again across all age groups, but in this case, the most pronounced difference emerged for the 7-year-olds.

Gitterman and Johnston concluded that the results support their dynamic/static hypothesis: pre-comparative meanings for adjectival comparatives describe within-object directional change. However, their perceptual cues hypothesis was not supported. Table 5.6 (Gitterman and Johnston's Table 3, p. 617) orders adjectives by number of correct responses:

Table 5.6 Number of Correct Responses on Stimulus Items (Gitterman and Johnston, 1983)

Stimulus Item	Task	Percept	Number responses Correct (out of 30)
long	Dynamic	-	30
tall	Dynamic	-	23
heavy	Dynamic	-	23
short (height)	Dynamic	-	22
wet	Dynamic	-	21
short (length)	Dynamic	-	20
tall	Static	Visual	20
dry	Dynamic	-	19
short	Static	Visual	19
light	Static	Tactile	17
heavy	Static	Tactile	16
light	Dynamic	-	16
soft	Static	Tactile	15
hard	Static	Tactile	13
dry	Static	Combined	10
wet	Static	Combined	9
clean	Static	Visual	9
dirty	Static	Visual	7
smooth	Static	Combined	7
rough	Static	Combined	6

Gitterman and Johnston conclude that it is not mode or quantity of perceptual cues that matter, but rather redundancy and heterogeneity of perceptual information.[7] They posit a three stage acquisition of comparatives: first, children use them to describe within-object changes; then, between object comparison, but only for some dimensional adjectives such as size; and finally, they extend comparatives to a wide range of attribute dimensions.

In sum, the research reviewed above provides evidence that children use *Adj+er* even before they have mature concepts of comparison. Early meanings have been claimed to be nominal, simple, or intensive, although Gathercole (1985) argues that while children's spontaneous use of comparatives is compatible with a simple or intensive interpretation, comparatives do not mean *X* or very *X*; that is, their meanings extend further. However, it would be interesting to consider Gathercole's hypothesis across adjectives as other findings indicate that early comparatives describe within-object change only and that the ability to use adjectives comparatively varies depending on the adjective. Furthermore, it has been suggested that comparative adjective use may be a function of adjective type or perceptual cues, although neither of these explanations appears to be solidly established.

5.3.3. Semantics of *More*

While the word *more* shows up in child production data relatively early, its use with adjectives seems delayed. Johnston (1985) notes the developmental history of *more*:

> In the first stages of language learning, children use *more* to request, or comment upon, the recurrence of an object or event (Bloom, 1970, 1975; Brown, 1973). Slightly later uses occur in the presence of two or more similar objects (Bloom, 1970) and seem to be primitive expressions of numerosity. Next, *more* appears in

> requests for an addition of an object (or amount) to an already present set (or substance) (Bloom, 1970). And finally, around age 3, children use *more* to talk about differences in the quantity or extent of two object sets or in the amounts of two substances (Bullock & Gelman, 1977). These observations suggest that the meaning of *more* may be progressively glossed as ANOTHER/AGAIN < MORE-THAN-ONE < MORE-THAN-THERE-WERE < MORE-HERE-THAN-THERE. (p. 973)

Recall that Gathercole (1979) found that *more* did not appear with adjectives in spontaneous production data until around age 4;6 and that it is frequently used as a double marking on adjectives already marked with the comparative suffix. Gathercole (1985) offers two possible explanations for her findings. In one account, the child simply lacks the linguistic knowledge that *more* can be used with adjectives. The other possibility is that children have this linguistic knowledge, but lack the opportunity to use it, as *more* is generally used with adjectives of lower frequency and the comparative suffix with adjectives of higher frequency. To choose between the two accounts, she tested children's ability to produce periphrastic comparative constructions in an elicited production task.

Fifty-six children between the ages of 2;6 and 6;6 were tested. Three exemplars were demonstrated: *fat/fatter, funny/funnier* and *delicious/more delicious*. For each exemplar, subjects were shown a pair of pictures, where the pictures differed with respect to the relevant property. The experimenter, holding, for example, pictures of two pigs, said, "If I say this pig is fat, I want you to say `This pig is fatter'. Can you do that?" The other two exemplars were also demonstrated. There were 12 test adjectives: *big, fast, high, long, ugly, happy, little, handsome, unhappy, interesting, difficult,* and *dangerous*. An adult pretest showed adults used suffixed comparatives with all of the

monosyllabics as well as with *ugly, happy* and *little* while *interesting, difficult* and *dangerous* were used in the periphrastic comparative form and choices for *handsome* and *unhappy* varied. Gathercole classified these as ER, MORE and EITHER adjectives, respectively.

For the test adjectives, children were again shown pairs of pictures but this time were asked to finish the sentence "This *A* is *B* and this *A/C* is _____." They were given three opportunities to respond with a comparative. Failure to respond to the initial prompt was followed by a subsequent prompt. Then, if needed, a reiteration of the *funny* model was provided. If a comparative was still not elicited, the correct answer was given. The results are reported in Table 5.7 (Gathercole's Table 5, p. 96).

Table 5.7 Markings on ER, MORE and EITHER Adjectives (Gathercole, 1985)

	Markings					
	ER Adjectives		MORE Adjectives		EITHER Adjectives	
Group	-er	more	-er	more	-er	more
2½-3	27.7	3.6	2.1	14.6	6.3	9.4
3½-4	70.5	3.6	35.4	29.2	40.6	15.5
4½-5	87.5	5.4	31.3	41.7	50.0	21.9
5½	100.0	0.0	50.0	29.2	75.0	18.8
Total	67.3	3.6	26.8	28.6	38.4	15.2

Note: Data are percentages calculated on the basis of the number of adjectives of type X marked with marker Y, divided by the total number of trials with adjective type X.

Gathercole notes that children were more successful at correctly marking ER adjectives than they were at correctly marking MORE adjectives and interprets these results as supporting the hypothesis that the linguistic knowledge that *more* can be used with adjectives is acquired rather late. It is worth noting, however, that there were two suffixed comparative exemplars and only one periphrastic and that test items included seven clear suffixed cases to three clear periphrastic.

5.4. Elicitation of the Synthetic Comparative

In her classic study, Berko (1958) elicited the production of various inflected forms of novel words; included in this group was the comparative suffix, which she categorized as inflectional. Berko found that children produced inflected forms for novel words that followed regular patterns found for real words. She claimed this as evidence that children postulate lexical rules, arguing that an inflected nonsense form could not have been conservatively learned. While her findings were robust for inflected forms such as the English plural and past tense, Berko failed to elicit the comparative suffix from all but one of the 80 children (ages 4-7) studied.

Berko included only one comparative/superlative test item in a total of 28. Subjects were shown pictures of three dogs - the first dog had a few spots, the second had more spots, and the third had the most. The experimenter said, *"This dog has quirks on him. This dog has more quirks on him. And this dog has even more quirks on him. This dog is quirky. This dog is ---. And this dog is the ---"*. While all the adults studied supplied *quirkier* and *quirkiest*, only one of the 80 children studied supplied the comparative form, as noted above. The rest either said they did not know or repeated the experimenter's word and said *"quirky, too"*. When the comparative was supplied, 35% were able to supply the superlative.

Selby (1972), using the same materials as Berko (1958), tested samples of 100 children at each year group between the ages of 4 and 14 and compared their performance against those of 50 adults. For the comparative, Selby reports that 76% of the adults responded with *quirkier*, thus establishing *quirkier* as the correct response. Table 5.8 (modified from Selby's Table 3, p. 297) represents the mean percentages of correct responses for the comparative and superlative that were reported for children:[8]

Table 5.8 Mean Percentage Correct Responses (Selby, 1972)

Age	Mean % Correct
3;5-4;5	2
4;5-5;5	3
5;5-6;5	2
6;5-7;5	1
7;5-8;5	7
8;5-9;5	8
9;5-10;5	15
10;5-11;5	22
11;5-12;5	28
12;5-13;5	30
13;5-14;5	42
14;5-15;5	42

Selby's data confirm Berko's conclusion regarding the comparative/superlative inflectional forms; i.e., that are acquired late. In fact, Selby's data indicate that they are not acquired by age 15;5. This seems implausible, especially in light of the research reviewed above and suggests a problem with the task.

Layton and Stick (1979) elicited comparatives by means of a cloze task (e.g., *This truck is big, but this truck is* _____) from children ranging in age from 2;6 to 4;6. In this task, subjects were presented with objects to describe. The adjectives tested *were big, small, tall, short, large* and *little*. Layton and Stick found that while the suffixed comparative appeared by 2;6, a 90% correct level was not reached by 4;6. The youngest children tended to produce base adjectives not marked with a suffix (46.7%) but by 4;6, this tendency decreased to 9.1%. Production of the comparative suffix increased linearly from 20.8% to 75.0%. Since the oldest children studied only attained a 75.0% usage rate, Layton and Stick concluded, as did Selby (1972), that the comparative suffix is acquired late compared to other morphological affixes. However, in a comprehension study, Layton and Stick found that the comprehension of comparative suffixes reaches a 90.0% correct level by age 4;6.

5.5. Conclusion

Both Gathercole (1979) and Blackwell (1998) find that the suffixed form appears before the age of three and prior to the periphrastic in spontaneous production. However, these early comparatives seem not to reflect a mature notion of comparison, but instead appear to have to have simple and intensive interpretations. Gathercole (1979, 1983) however, notes that early suffixed comparatives may not mean *Adj* or *very Adj* and instead have meanings that extend beyond these simple and intensive interpretations. With respect to early comparative meanings, there also seems to be a great deal of variability reported among adjectives and a variety of accounts for this have been proposed. Regarding the semantics of more, Johnston (1985) reports a developmental sequence and Gathercole (1983) interprets difficulty with eliciting *more + Adj* in her study as indicative of children's ignorance regarding the possibility of *more* modifying an adjective.

Studies that sought to elicit comparatives showed varied results. Layton and Stick (1979), using real adjectives, were able to achieve a 75% elicitation rate by age 4;6 but concluded, nonetheless, that comparative *-er is a later acquired suffix*. Gathercole (1983), on the other hand, elicited suffixed comparatives 100% of the time from 5-year-olds. This discrepancy, however, may be attributable to the number of opportunities children were given in the Gathercole study. Both Berko (1958) and Selby (1972), were essentially unsuccessful. This may be due, however, to the fact that both used novel and perhaps not entirely semantically clear forms.[9]

Chapter 5: NOTES

1. The periphrastic comparative preference for high frequency, non-gradable monosyllabics that was indicated in the adult experimental findings is not relevant here as it is their non-gradablility that prevents these adjectives from being used comparatively. Therefore, they are unlikely to appear in the child's input.

2. These findings regarding the acquisition of the English comparative stand in direct opposition to the conclusions of Mills (1985) on the acquisition of the comparative in German. Mills cites Preyer (1882), Lindner (1898) and Stern and Stern (1928) in identifying *mehr* (*more*) as the first comparative form children use and offers this as support for Wode's (1978) claim that free forms are acquired before bound forms. However, she notes that it is not completely evident that *mehr* is used in exactly those cases where the suffix would be appropriate; i.e., it may simply be used as an intensifier in the same way as *noch* (still) and *viel* (much). However, citing Pregel's (1970) claim that 50% of comparatives used by children between 6 and 9 years old were formed with *mehr*, Mills concludes that this form is preferred due to its semantic clarity. It seems to me that this issue needs to be further investigated as the early role of *mehr* is not clear and 50% hardly indicates a preference.

3. By "implicitly comparative", H. Clark (1970) is referring to the fact that when using non-absolute adjectives, some standard is implied to which the modified object is being compared. For example, saying "This building is tall", means it is tall relative to some implicit standard.

4. Although H. Clark (1970) is talking about comparatives, he refers often to base adjectives and doesn't address the issue of how children might differ in the use of the two different forms. I assume, then, that if a comparative is used nominally in Stage I, the base form must also be used that way.

5. It is clear here that Ehri (1976) is claiming a simple adjective interpretation for comparative adjectives. However, as noted by Gathercole (1983), Ehri continues to call early comparative uses "nominal" following H. Clark (1970).

6. This task seems inherently confusing. If, for example, one object were *drier*, the other would at least be damp, and therefore *wetter*. So to say "*These are not wet*" seems incongruous.

7. Gitterman and Johnson (1983) note that in the static condition, the visual perceptual cue attributes *tall/short* and *clean/dirty* are treated very differently, and attributes with combined perceptual cues were among the most difficult. Tactile cue attributes do not prove to be very difficult, but Gitterman and Johnston report that *hard* and *soft* were often used to describe any of the tactile attributes, suggesting that these may have undifferentiated tactile meanings in the same way that *big* and *little* are used by young children to talk about various dimensions of size. As a result, they reanalyze their attributes in what appears to be a somewhat ad hoc way.

8. It should be noted that Selby (1972) was testing British subjects. Recall that Ballinger (1991), discussed in Chapter 3, found her British subjects to be somewhat less inclined than her American subjects to use the inflectional form (although her between groups difference was small).

9. Layton and Stick (1979) report that Lovell and Bradbury (1967) and Dever and Gardner (1970) found that in cloze tasks, real words elicited better scores than novel words.

Chapter 6: The Child Grammar

6.1. Introduction

Chapter 5 discussed literature that was concerned with children's use and interpretation of comparatives. Overall, it was discovered that children generally use the suffixed before the periphrastic comparative, that early meanings are not necessarily comparative in nature, that it is easier to elicit the suffixed than periphrastic form and easier to elicit the suffixed comparative for real than for novel adjectives. The research described below considers spontaneous production data as well as experimental data, in order to investigate how children's grammars are organized with respect to the periphrastic/suffix distribution.

6.2. Production Data: CHILDes Search

The CHILDes database was searched with three goals in mind: 1) to see what forms children used when they made comparisons or used comparative markers; 2) to investigate the relationship between adult input and child production; and 3) to determine the extent and nature of child overgeneration of comparatives.

6.2.1. Search Parameters

In searching the database, it was first necessary to determine criteria for identifying a child utterance as an instance of comparison. An adult comparative might be marked by an explicit *than* phrase. In the absence of a *than* phrase, comparison is indicated in the adult language by the presence of *more* or the suffix *-er*. The presence of an explicit *than* phrase in the child data might also indicate comparison, although recall that Gathercole (1983) identified *than* phrases in child spontaneous production data where *than* may be interpreted as "like" (see Section 5.3.1). It is difficult to detect comparison in the absence of the *than* phrase, if the child also omits *more* or *-er*; i.e., if the child simply produces the base adjective even though comparison may be intended. In such a case, intended comparison can only be contextually determined, so

in the absence of context, it is impossible to tell whether the child intended to communicate degree or a simple property. To maximize the chances of locating comparatives in the database, the following search parameters were selected as criteria for categorization as a comparative form: 1) *Adj+er* (optional *than*); 2) *more + Adj* (optional *than*); and 3) *Adj + than*. Thus, adjectives that do not appear with a *than* phrase and are not overtly marked for comparison were not counted here.

6.2.2. Search Results

The MacWhinney corpus was searched for comparatives as defined by the parameters above. The corpus consists of 67 files that document the linguistic development of MacWhinney's two sons, Ross and Mark. Ross was recorded between the ages of 2;6 and 8;0 and Mark between 0;7 and 5;6. The MacWhinney corpus also includes 29 unfinished files; these were not searched. The transcripts represent usual family interactions.

Appendix F contains the comparatives that were produced by Ross and Mark, identified using the search parameters described above and organized chronologically. It also gives tallies of the comparatives produced by each of the boys and their parents. These are the basis of the data analyzed in this section. Table 6.1 compares suffixed and periphrastic comparative totals (by Type and Token) for each of the children and their parents over the course of data collection.

Table 6.1 Comparatives: Suffixed vs. Periphrastic by Type and Token: MS and 1DS (No 2DS found)

	MS				LE				Y			
	SUF		PER		SUF		PER		SUF		PER	
	TP	TK	TP	TK	TP	TK	TP	TK	TP	TK	TP	TK
Ross	27	120	3	4	1	6	0	0	7	27	3	3
Mark	16	53	3	6	1	2	0	0	4	14	2	2
Adults	36	192	3	18	1	1	0	0	6	47	2	2

Note that only monosyllabic (MS) and 1-disyllabic (Y and LE) adjectives appear here; no instances of 2-disyllabic adjectives (LY, OW, SOME and ER) appeared in either the adult or child data.[1] Only one instance of a semantically incompatible adjective used comparatively, was found: *more real* appears 5 times in the adult data. Overall, the search revealed relatively few uses of the analytic comparative by either of the children or their parents.

In addition to the adjectives reported in Table 6.1, adjectives other than MS and 1DS were found in comparative forms. Those found in the adult data are summarized in Table 6.2:

Table 6.2 Adult: Other Adjective Types

	Suffixed	Periphrastic
Other Disyllabics		
active	0	1
careful	0	3
harmful	0	1
harmless	0	2
Multisyllabics		
interesting	0	1
serious	0	1

Note that all of the adjectives in Table 6.2 have periphrastic comparative forms. Of these, 4 also appeared in the child data: Ross produced *more harmful, more harmless* and *more interesting;* Mark produced *more harmful*. In addition, each of the children produced comparative forms that were not attested in the adult sample. These appear in Table 6.3 below:

Table 6.3 Children's Comparatives Not Appearing in the Adult Sample

Ross:

	Suffixed		Periphrastic		Double Marked		Other	
MS:	colder	1	more strange	1	more funner	1	close than	1
	darker	1			anymore sicker	1		
	sicker	1			more lighter	1		
	shorter	2			more bigger	1		
	grosser	2						
1DS:								
Y:	bossier	1	more yummy	1	more busier	2	happy than	1
	uglier	1	more scary	1				
	screwier	1						
	foggier	1						
Other DS:								
	pleasanter	1	more scared	1	more specialer	1		
Multi:								
					more Mr. Wonderfuler	1		
							very powerful than	2

Mark:

	Suffixed		Periphrastic		Double Marked		Other
MS:	colder	1	more big	1	more drier	2	
			more cut	1	more cleaner	1	
					more hotter	1	
1DS:							
Y:	heavier	3	more squishy	1	more squishier	1	
	luckier	1					
Other DS:							
			more burning	1			
Multi:							
			more important	1			

Note that *cut*, although monosyllabic, is a participle and Mark forms its comparative periphrastically. Note also that children produced comparatives in more than one way for some adjectives (e.g., *squishy*). These are displayed chronologically in Appendix F.

Table 6.4 below reports the total number of suffixed and periphrastic productions (collapsing over all adjective types) excluding suppletives, and forms listed under "double marked" and "other" in Table 6.3.

Table 6.4 Total Number of Suffixed/Periphrastic Forms Across Adjectives

	Suffixed		Periphrastic		TOTAL	
	Type	Token	Type	Token	TYPE	TOKEN
Ross	37	151	10	11	47	162
Mark	21	69	8	11	29	80
Adults	43	240	11	29	54	269

The suffixed comparative appears 3.9 times more frequently by type than does the periphrastic comparative in the adult data; it occurs approximately 8.3 times more frequently in terms of token. If we consider Ross's comparatives over the same period of time, we see that in terms of type, Ross produced the suffixed comparative approximately 3.7 times more frequently than the periphrastic and, in terms of token, 13.7 times more frequently; for Mark, these numbers are 2.6 and 6.3, respectively. In terms of type, the ratio of suffixed to periphrastic comparatives in Ross's production mirrors that of the adult input; Mark's suffixed to periphrastic ratio does not resemble that of the adults as closely as does Ross's. Mark, who is younger, produced a somewhat higher number of periphrastic comparatives relative to suffixed. This is actually consonant with the experimental data reported in Section 6.3.2. below.

Table 6.5 below summarizes the production of adjectives with suppletive comparative forms that were excluded from the original counts.

Table 6.5 Suppletives

	better	gooder	more better	worse	TOTAL
Ross	44	1	0	2	47
Mark	28	1	0	0	29
Adults	120	3	1	10	134

The adult data contained 120 instances of *better*.[2] Data from Ross and Mark show that each child used the non-adult *gooder* once (in two different exchanges). Parental input shows 3 uses of *gooder* in the same two exchanges, but parental uses of this form were limited to one repetition of a child utterance and two questions regarding whether or not the form was "correct". The one instance of *more better* in the adult data was a report of an utterance by Mark, although Mark's utterance itself was not in the sample.

6.2.3. Conclusion: Database Search

The database search revealed that children's early comparatives, as well as the comparatives found in their input, are overwhelmingly suffixed as opposed to periphrastic. The adult data revealed an approximate 4 to 1 ratio of suffixed to periphrastic comparative forms, which was closely matched by that of Ross; Mark showed a slightly higher usage rate of the periphrastic relative to the suffixed comparative form, but still used the suffixed form more often. The high use of suffixed comparative forms in the data may be attributable to the use of short, high frequency adjectives by children and by adults in conversation with children.

Double comparatives (e.g., *more funner*) and overregularization of adjectives that have suppletive comparatives (e.g., *gooder*) taken together, were slightly less frequent for Ross than for Mark. Ross produced 8 tokens of double marked comparatives and 1 overregularization out of a total of 214 comparatives (including suppletives), or a 4.2% rate of "error". Out of 123 comparatives, Mark produced 5 double comparatives and 1 overregularization; he also produced 1 non-adultlike form that does not fit into these categories: *more big*. This gives him a total of 7 "errors" or an "error" rate of 5.7%. For both children, however, the "error" rate is clearly very low.

Recall that children may initially use comparative adjectives simply. It may be the case that the comparative is not always recognizable to the child; the comparative suffix is often reduced to a schwa in many dialects and comparative adjectives do not always appear with a *than* phrase. In fact, in the adult sample, a *than* phrase appears with only 63 of 403 the comparatives produced, or about 15.6% of the time. When considering the total number of comparative utterances each child produced, Ross used a *than* phrase 42 times out of 214 (20%) and Mark 27 times out of 123 (22%).[3]

6.3. Experiments

The database search gives an indication of which comparative forms children use spontaneously when they want to make comparisons. However, it does not give us a full picture of what their grammars specify with respect to the suffixed/periphrastic distribution. The goal of the experimental research that follows was to map child preferences with respect to the two comparative types, in much the same way as the experiments reported in Chapter 4 were designed to map adult preferences. Here, we are not asking what it is that children do, but rather, which of the two forms children prefer when given a choice.

6.3.1. Method

Materials and Design: It would be ideal to simply have the children repeat the adult experiments that were described in Chapter 4. However, exact duplication of the adult designs for the children seemed unwise for two reasons. First, it seemed unlikely that the children would be able to make the fine-grained judgments necessary in an absolute judgment task; therefore, it seemed more reasonable to ask children only to do the Real Relative and Novel Relative Experiments. Second, it was expected that children would be unable to complete as many trials as the adults, even in a series of sessions. Since it seemed unlikely that children would have encountered many of the low frequency adjectives

included in the adult experiments, low frequency adjectives were not tested: All test forms for the children were high frequency. As a consequence, the variable Frequency was dropped from the experimental design.

Excluding the low frequency forms, test items were the same for the children as for the adults. Children's filler items were also a subset of those judged by the adults, and the three types of fillers that appeared in the adult Real Relative Experiment appeared in the same proportions here. Materials consisted of 32 pairs of sentences (16 test pairs and 16 filler pairs) in the Real Relative Experiment and 24 sentence pairs (12 test pairs and 12 fillers) in the Novel Relative Experiment. The orders of item presentation followed those of the adult designs (minus the low frequency test pairs and half of the fillers, as noted above).

Procedure: Data were gathered through individual interviews of 4- and 7-year-old children. Many of the 4-year-old subjects and all of the 7-year-old subjects were able to complete both tasks in a single session. Some of 4-year-olds required two sessions; one required three. Children performed the Real Relative Experiment first. Questionnaires were read to the subjects by the experimenter as they were for the adults. However, while adults were asked to circle "a" or "b" on their answer sheets to indicate their preferences, the children gave their answers verbally; these were recorded in written and audiotaped form by the experimenter.

The session began with a pretest. See Appendix G for a sample of the Real Relative Experiment questionnaire including the pretest. The pretest began with the experimenter asking children to identify characters in *Snow White* by pointing to pictures in a book. They were then asked questions such as "Who's taller...Snow White or Grumpy?".

Next, the experimenter told the children that sometimes when we talk, one way of saying something sounds better to us than another. Children were then asked to look at a picture of Snow White's mother sitting alone and were asked Pretest Question 1: "Which sounds better to you: *The Queen is sitting by himself* or *The Queen is siting by herself*? *Himself*? Or *herself*? Three more pretest questions followed. The book was then put aside and children were asked to tell which sentence they liked better for the Real Relative Experiment. Upon completion of the Real Relative Experiment, subjects were told that they would hear some more sentence pairs that contained made-up words. Since the words were made-up, the children were not expected to know what they meant, but were asked again to say which of the pair of sentences sounded better. The sentences containing novel adjectives were then presented in the same way as those containing real adjectives had been. The Novel Relative Experiment questionnaire read to the children was the same as the one that had been read to the adults. See Appendix D. After the experiments, children were given stickers as a reward for their participation.

Subjects: Subjects were 78 children who were learning English as their first language. There were 40 children in the 4-year-old group and 38 in the 7-year-old group. The 4-year-old group was composed of preschoolers from Bayside Nursery School in Queens, New York, and Redeemer St. John's Nursery School in Brooklyn, New York. Ages of the children in this group ranged from 3;11 to 5;1. The 7-year-olds were second grade students from a number of private and parochial schools in Brooklyn, New York and Hazlet, New Jersey. Children's ages in this group ranged from 7;3 to 8;2.

All children were given the pretest described above to see if they understood the directions and could grasp comparison. For a child to be included in the study, the child had to

1. complete the Pretest,
2. choose *herself* for Pretest Question 1 (described above; since the reflexive is acquired early, failure to choose the correct answer might indicate an inability to perform the task),
3. complete all questions in both tasks, and
4. appear to be normally developing children with no speech impediments or hearing loss.

One 4-year-old was excluded for failing to complete the Pretest and two for failing to complete both tasks. In addition, one 4-year-old was excluded for choosing *himself* for Pretest Question 1. The total number of 4-year-olds remaining was 36, 15 boys and 23 girls.

One 7-year-old who showed signs of a learning disability was excluded along with one who had a severe articulation disorder and a suspected hearing loss. The total number of 7-year-olds studied was 36, 15 boys and 23 girls.

6.3.2. Results and Discussion

6.3.2.1. Real Relative Experiment

Both 4- and 7-year-olds seemed capable of performing the Real Relative Experiment, as indicated by their performance on the fillers. See Appendix H for a comparison of child and adult results on the Real Relative Experiment fillers.

The data of the Real Relative Experiment are displayed in their entirety in Table 6.6 below. Adult judgments, for the same items and previously reported in Chapter 4, are repeated here for comparison to the child results. For the adult data, the percentage of choice of the periphrastic form is reported as the primary data with the percentage of choice of the suffixed form included, in parentheses, for the reader's convenience.

Table 6.6 Item-by-Item Outcomes for Real Adjectives/Child and Adult Subjects: Relative Judgments % PER (% SUF)

		% Choice Periphrastic		
		4-Year-Olds	7-Year-Olds	Adults
MS/SC	old	80.6 (19.4)	2.8 (97.2)	0 (100.0)
	cold	22.2 (77.8)	13.9 (86.1)	1.6 (98.4)
	short	77.8 (22.2)	22.2 (77.8)	1.6 (98.4)
	long	63.9 (36.1)	11.1 (88.9)	0 (100.0)
MS/SI	right	38.9 (61.6)	58.3 (41.7)	80.6 (19.4)
	dead	83.3 (16.7)	86.1 (13.9)	87.1 (12.9)
	wrong	25.0 (75.0)	22.2 (77.8)	82.3 (17.7)
	whole	86.1 (13.9)	80.6 (19.4)	95.2 (4.8)
1DS	little	22.2 (77.8)	19.4 (80.6)	24.2 (75.8)
	simple	13.9 (86.1)	41.7 (58.3)	6.5 (93.5)
	heavy	75.0 (25.0)	22.2 (77.8)	1.6 (98.4)
	happy	63.9 (36.1)	44.4 (55.6)	6.5 (93.5)
2DS	friendly	75.0 (25.0)	69.4 (30.6)	27.4 (72.6)
	narrow	30.6 (69.4)	61.1 (38.9)	12.9 (87.1)
	handsome	80.6 (19.4)	72.2 (27.8)	79.0 (21.0)
	bitter	83.3 (16.7)	94.4 (5.6)	98.8 (1.2)

Note: Chi-Square analysis for the children's Relative Judgment data revealed that percentages greater than 66.7 or less than 33.3 differ significantly from chance, $p<.05$. Recall that for the adult data, these percentages are 62.9 and 37.1, respectively.

Once again, variability among responses in each phonological group is evident. However, some interesting patterns emerge. Recall that the adults, with respect to the real adjectives, consistently showed evidence of making real choices, only performing at the level of chance for the low frequency test item *mellow*. Here, a Chi-Square analysis using a criterion of $p<.05$ for non-chance performance, revealed that 4-year-olds' comparative choice percentages for *long, right* and *happy,* and 7-year-olds' for *right, simple, happy* and *narrow* did not differ significantly from chance.

Monosyllabics: The 4-year-olds' choice of comparative type for semantically compatible monosyllabic adjectives does not differ from their choice for semantically incompatible monosyllabic adjectives, $F<1$ in both subject- and item-based analyses. In both cases, the periphrastic is preferred over the suffixed comparative. The 7-year-

olds, however, do show a difference in their preferred comparative type for semantically compatible and incompatible monosyllabics, $F_1(1,35) = 104.34$, $p<.001$, $F_2(1,6) = 10.74$, $p<.025$, preferring the suffixed form for the semantically compatible and the periphrastic for the semantically incompatible. This difference in response pattern is supported by the results of a 2 x 2 ANOVA with Age as a between groups variable and Semantic Compatibility as a repeated measures variable. The means shown in Table 6.7 below indicate an interaction (Age x Semantic Compatibility), $F_1(1,70) = 55.50$, $p<.001$, $F_2(1,6) = 11.17$, $p<.025$.

Table 6.7 **Child Relative Judgements (Monosyllabics)**
Percent responses favoring periphrastic (cf. suffixed, in parentheses) forms of the comparative

	4-Year-Olds		7-Year-Olds	
SC	61.1	(38.9)	12.5	(87.5)
SI	58.3	(41.7)	61.8	(38.2)

It is interesting that while both the 4- and 7-year-olds prefer the periphrastic for semantically incompatible adjectives for the item set taken as a whole, the individual item *wrong* is preferred in the suffixed form by both groups of children. This is especially perplexing given the adults' strong preference for *more wrong*, which suggests that *wronger* is unlikely to be present in the input. At present, I can offer no plausible account of this finding. Furthermore, while 4-year-olds prefer the periphrastic on average for the semantically compatible adjectives, they prefer the suffixed form for the individual item *cold*. The fact that the 4-year-olds treat *old* and *cold* differently (preferring the suffixed form for the former and the periphrastic for the latter) suggests that they are not being driven by phonological analogy. Why *cold* should be exceptional is also unclear, unless perhaps it is being used dynamically (see Chapter 5).

1-Disyllabics: The 4-year-olds show preferences that differ between LE forms and Y forms, $F_1(1,35) = 42.97$, $p<.001$; for LE forms, it is the suffixed comparative that is preferred while for Y forms it is the periphrastic. On the other hand, 7-year-olds show no difference across these Ending Types, $F_1<1$, preferring the suffixed comparative form for both LE and Y disyllabics. This difference in response patterns was supported by a 2 x 2 ANOVA performed on the 1-disyllabic means with Age as a between groups variable and Adjective Type (LE and Y) as a repeated measures variable. Means are displayed in Table 6.8. The ANOVA demonstrated an interaction (Age x Adjective Type), $F_1(1,70) = 19.57$, $p<.001$.[4] However, a closer look at the 7-year-olds' preferences shows a great deal of variability within the two ending types; the 4-year-olds behave more consistently within ending types.

Table 6.8 Child Relative Judgements (1-Disyllabics)
Percent responses favoring periphrastic (cf. suffixed, in parentheses) forms of the comparative

	4-Year-Olds	7-Year-Olds
LE	18.1 (81.9)	30.6 (69.4)
Y	69.5 (30.5)	33.3 (66.7)

2-Disyllabics: For 2DS adjectives, 4- and 7-year-olds behaved similarly, with the exception of results for the adjective *narrow*. Both 4- and 7-year-olds preferred *friendly, handsome* and *bitter* in the periphrastic comparative form. On the other hand, while 4-year-olds preferred *narrow* in the suffixed comparative form, 7-year-olds showed no significant preference of comparative type with this adjective. The data are displayed in Table 6.9 below.

Table 6.9 Child Relative Judgements (2-Disyllabics)
Percent responses favoring periphrastic (cf. suffixed, in parentheses) forms of the comparative

	4-Year-Olds		7-Year-Olds	
LY	75.0	(25.0)	69.4	(30.6)
OW	30.6	(69.4)	61.1	(38.9)
SOME	80.6	(19.4)	72.2	(27.8)
ER	83.3	(16.7)	94.4	(5.6)

A similarity in the responses of the two groups was not supported by the results of 2 x 4 analyses of variance. As with the 1-disyllabics, Age was a between groups variable and Ending Type a repeated measures variable. ANOVA results reveal an interaction of Age x Ending Type, $F_1(3,210) = 3.66$, $p<.025$. However, it is clear that the interaction is attributable to *narrow* -- the only adjective preferred in the suffixed form. When that item is removed, no interaction is evident, $F_1(2,140) = 1.32$, $p>.25$.

Summary: With the exception of the 2-disyllabic adjectives, 4- and 7-year olds behave differently with respect to comparative type preferences. Considering only the MS and 1DS adjectives for the moment, the 4-year-olds chose the periphrastic more often than did the 7-year-olds. This suggests an initial bias toward the periphrastic. The suffixed comparative was only preferred by the 4-year-olds for 5 of the 12 adjectives tested and these do not form a homogeneous group. For example, only 2 of the 8 monosyllabic adjectives were preferred in the suffixed form, and these varied in terms of semantic compatibility. However, while it is true that 4-year-olds show a suffixed comparative preference for both of the LE adjectives tested, it is difficult to make a generalization regarding this Ending Type due to the low number of test items.

On the other hand, 7-year-olds chose the suffixed form more frequently than did the 4-year-olds. The 7-year olds chose the suffixed comparative for semantically compatible monosyllabics, and LE and Y 1-disyllabics. However, there is still some variability within these adjective types that seems more compatible with conservative learning than with the presence of a lexical suffixation rule. It seems, then, that children have an initial bias toward the periphrastic comparative form and conservatively learn suffixed comparative adjectives.

6.3.2.2. Novel Relative Experiment

Results of the Novel Relative Experiment are displayed in Table 6.10 below. Adult judgments are included for comparison and for reasons that will become clear shortly, the order of forms in the left hand column indicates order of presentation in the experiment.

Table 6.10 Item-by-Item Outcomes for Novel Adjectives/Child and Adult Subjects: Relative Judgments % PER (% SUF)

	Presentation Order	4-Year-Olds	7-Year-Olds	Adults
MS	more sant/santer	19.4 (80.6)	33.3 (66.7)	59.7 (40.3)
	sturter/more sturt	88.9 (11.1)	55.6 (44.4)	56.5 (43.5)
	saller/more sall	80.6 (19.4)	58.3 (41.7)	43.5 (56.5)
	more zelk/zelker	16.7 (83.3)	55.6 (44.4)	40.3 (40.3)
1DS				
LE:	more kittle/kittler	16.7 (83.3)	19.4 (80.6)	50.0 (50.0)
	ruppler/more rupple	80.6 (19.4)	66.7 (33.3)	56.5 (43.5)
Y:	dempier/more dempy	75.0 (25.0)	69.4 (30.6)	22.2 (77.8)
	more rilty/riltier	11.1 (88.9)	25.0 (75.0)	35.5 (64.5)
2DS				
LY:	puttlier/more puttly	88.9 (11.1)	69.4 (30.6)	35.5 (64.5)
OW:	dillower/more dillow	83.3 (16.7)	72.2 (27.8)	40.3 (59.7)
SOME:	more felsome/felsomer	22.2 (77.8)	50.0 (50.0)	64.5 (35.5)
ER:	more fumper/fumperer	22.2 (77.8)	58.3 (41.7)	72.6 (27.4)

Note: Chi Square analysis for Relative Judgment data revealed that percentages greater than 66.7 and less than 33.3 differ significantly from chance ($p<.05$) for the child data. For adult data percentages are 62.9 and 32.1, respectively.

Technically, for each of the 12 test items, 4-year-olds' judgments differ significantly from chance while for 7-year-olds, only 7 judgments do. However, the data of Table 6.10 are entirely misleading and this is demonstrated in Table 6.11 below, in which the results are reorganized to indicate the order in which test items (in sentences) were presented for judgment.

Table 6.11 Item-by-Item Outcomes for Novel Adjectives/Child Subjects: Percent responses favoring second position

	4-Year-Olds	7-Year-Olds
more sant/santer	80.6	66.7
sturter/more sturt	88.9	55.6
saller/more sall	80.6	58.3
more zelk/zelker	83.3	44.4
more kittle/kittler	83.3	80.6
ruppler/more rupple	80.6	66.7
dempier/more dempy	75.0	69.4
more rilty/riltier	88.9	75.0
puttlier/more puttly	88.9	69.4
dillower/more dillow	83.3	72.2
more felsome/delsomer	77.8	50.0
more fumper/fumperer	77.8	41.7

Clearly, 4-year-olds are employing a response strategy that has nothing to do with the relative well-formedness of the two forms of the comparative; rather, for the novel test items, they chose the form presented more recently (second) 82.4% of the time. They did not, however, show a "more recently heard" bias in the Real Relative Experiment test items, where they chose the forms in second position only 66.8% of the time (see Appendix H).

The 7-year-olds did not show evidence of a second position bias in either experiment, choosing the forms in second position only 62.5% of the time for test items in the Novel Relative Experiment and 58.67% of the time for test items in the Real Relative Experiment. See Appendix I for a comparison of child and adult novel filler results. Most of the 4-year-olds completed the entire study in a single session and the Novel

Relative Experiment was the last to be performed, so they may have resorted to a default strategy as a result of fatigue, or possibly, as a result of uncertainty.

While the 7-year-olds do not appear to have resorted to this strategy, they indicated a comparative preference for only seven of the twelve test items. They chose the suffixed comparative for one of the LE adjectives and one of the Y adjectives; for the other Y adjective as well as the LY and OW adjectives, they chose the periphrastic. Like the adults, 7-year-olds, in general, did not show strong preferences for either comparative form with novel adjectives.

6.4. Conclusion

Clearly, there was variability in the children's responses. With this caveat in mind, however, the following generalizations emerge. Regarding real adjectives, children initially show a preference for the periphrastic comparative for most adjectives, as indicated by the data from the 4-year-olds. By the age of 7, they begin to prefer the suffixed form for the same adjectives adults prefer in the suffixed form: monosyllabics, as long as they are gradable, and 1-disyllabics (LE and Y). Children do not, however, show evidence of having completely acquired the adult preferences by age 7.

Results of the Novel Relative Experiment suggest that the 4-year-olds utilized a "more recently heard" strategy. 7-year-olds showed few real preferences and when they did, no systematicity was evident.

Chapter 6: Notes

1. Excluded here are suppletive comparative forms (i.e. *better, worse*). These are treated separately in Table 6.5. However, *gooder,* as an example of a monosyllabic suffixed comparative, was included.

2. With respect to *better,* counts include utterances such as *it's better,* and *feels better* and *getting better,* where the verb seemed copular in nature, although in many instances, it is very doubtful that these are being used comparatively. Instances such as *a better N* were also included. Modal-like uses such as *you'd better* were excluded.

3. Note that Mark also produced two *to* phrases, one *that* phrase, and one *in* phrase. See Appendix F: 67/1681; 57/1795; 73d/404; and 74a1/445.

4. Due to the low number of items, item based analyses were not conducted for 1- and 2-disyllabics.

Chapter 7: Acquisition of Comparative Forms

7.1 Introduction

The research presented in the preceding chapters sought to establish the distribution of the suffixed and periphrastic comparative forms in the adult grammar as well as in the developing child grammar. Below, the relationship between the two comparative forms will be considered, the adult and child data will be interpreted, and a course of acquisition will be proposed.

7.2. The Relationship between the Two Comparative Forms: A Blocking Analysis

Di Sciullo and Williams (1987) analyze *more + Adj* as resulting from a syntactic rule that can be blocked by a morphological rule that affixes the suffix to monosyllables or disyllables that end in *-y* (p. 11-12). Given the greater generality of *more + Adj* as compared to the suffixed form, this analysis seems reasonable and intuitively correct, although it does not address the issue of suffixed comparatives of other disyllabic adjectives (recall that the data reported in Chapter 4 indicate suffixed comparative form preferences for high frequency LE, LY, and OW disyllabics). This analysis generates two predictions that can be evaluated in light of the present research. First, it predicts that monosyllabic adjectives and disyllabics ending in *-y* serve as input to a lexical rule[1] that affixes *-er* regardless of any other factors such as frequency or gradability. Second, it predicts that *more + Adj* emerges as a default[2] for those adjectives that do not meet conditions for affixation. I will argue that the data presented in Chapters 4 and 6 suggest that Di Sciullo and Williams' analysis is correct in spirit; that is, suffixed comparative forms block periphrastic. However, I will argue

that the data also suggest that no lexical rule of suffixation applying to both monosyllabic and disyllabics ending in *-y* is in operation for adults or children. Instead, the periphrastic is blocked by conservatively learned suffixed comparatives that are listed in the lexicon. Further, I present an analysis of *more + Adj* in which it is characterized as a case of *more support*, or more generally *mo- support*,[3] a notion that is more compatible with current linguistic theory than is that of a syntactic rule.

7.3. The Adult Grammar

7.3.1. Evidence of a Lexical Rule?

The research reported in Chapter 4 shows that choice of comparative type, as well as absolute ratings of comparative forms, often reflects an effect of frequency. With the exception of Y disyllabic adjectives, low frequency forms are always preferred in the periphrastic comparative, even if a bias toward suffixation is evident for phonologically comparable high frequency forms. It is never the case that an adjective type that shows a periphrastic bias for its high frequency forms displays a suffixed comparative preference for its low frequency forms. Table 7.1 shows possible patterns and the adjectives types that display them.

Table 7.1 Patterns of Choice: Real Relative Experiment/Adults

High	Low	Adjectives
SUF	SUF	Y disyllabics
SUF	PER	MS/SC; LE disyllabics; LY disyllabics
PER	SUF	------
PER	PER	MS/SI; SOME disyllabics; ER disyllabics

Note: High frequency OW disyllabics are preferred in the suffixed comparative form but show no comparative type preference for low frequency forms and so are not listed here.

Monosyllabic semantically compatible (MS/SC) and Y disyllabic adjectives are the only adjectives that show a suffixed comparative preference. However, this preference disappears when adjectives are low frequency only in the case of the monosyllabic, semantically compatible adjectives; for Y disyllabics, the suffixed preference holds. Further, monosyllabic semantically incompatible adjectives (MS/SI) are never preferred in the suffixed comparative form, regardless of frequency. These observations suggest that no general phonologically conditioned rule of suffixation, such as that described by Di Sciullo and Williams, exists.

If it were the case, however, that suffixation is rule-governed, monosyllabicity would not be the only condition needed for a comparative rule to apply to monosyllabics; in addition semantic compatibility and frequency must also be conditions. However, the data indicate that these are not conditions for affixation to Y disyllabics. For these adjectives, the conditions of disyllabicity and ending in *-y* are enough to account for the data. Perhaps, then, more than a single suffixation rule is in effect, one applying to monosyllabic adjectives (under certain conditions) and one applying to Y disyllabic adjectives. Recall, however, that Di Sciullo and Williams do not address LE 1-disyllabic or LY and OW 2-disyllabic adjectives. Yet the data indicate a suffixed comparative preference for these disyllabics as well, but only when they are high frequency. So, LE, OW and LY disyllabics could not be accounted for under the same rule that accounts for Y disyllabics. How would rule(s) that account for the data be constrained? [4]

7.3.1.1. Constraining a Monosyllabic Suffixation Rule

Semantically compatible monosyllabic adjectives that were preferred in the suffixed comparative when they were high frequency were preferred in the periphrastic when they were low frequency. To account for this frequency effect, base adjectives would have to be listed and tracked with respect to frequency of occurrence. This is plausible in view of the fact that the relevance of frequency to lexical processing that was found in early psycholinguistic studies (e.g., Rubenstein, Garfield and Millikan (1970) and Forster and Chambers (1973)) remains uncontested by more current research. However, in addition to the base adjective, instances of at least one of the two comparative forms, suffixed or periphrastic, would also need to be listed so that base adjective/ comparative pairs would be available for analysis. For ease of discussion, the synthetic comparative will be assumed here to be the form listed.[5] Under this approach, the effect of semantic compatibility that was found for the monosyllabics could only be explained as a separate condition on rule application. That is, speakers would also have to notice that not all high frequency monosyllabic adjectives have synthetic comparative adjective counterparts; only those that are gradable do.[6] Then, at some point, a generalization would be made by the language learner that is conditioned by 1) frequency of the base adjective (*high*) and 2) gradability (*gradable*).

Note that the condition of monosyllabicity would have to be recognized first. If it were not and instances of suffixed comparatives of all adjective types were subject to analysis (i.e., monosyllabic,

1-disyllabic and 2-disyllabic), suffixed comparative forms with low frequency Y disyllabic bases would mask the frequency effect that was observed in the data of non-Y disyllabic adjectives.[7]

What predictions would this model make with respect to the comparative form of a previously unencountered adjective? A newly encountered monosyllabic adjective could reasonably be classified by a speaker as a low frequency form since it is encountered late, relative to other, already listed monosyllabic adjectives. In that case, it would not meet the conditions for rule application. Therefore, the suffixation rule would not apply and, presumably, the periphrastic form would be chosen. However, the results of the Novel Relative Experiment (as well as those of the Cloze and Absolute Novel Experiments), which presented previously unheard adjectives, do not support this prediction. Subjects in that experiment showed no real comparative type preference for novel monosyllabic adjectives. It could be argued, however, that a previously unencountered adjective might not automatically be classified as *low frequency*. Rather, it might be construed as being of unknown frequency (that is, of either *high* or *low frequency*), and depending on the view taken, the rule would or would not be applied. This would predict the variability that is evident in the results of the novel adjective experiments and would also predict that guesses are made as adjectives are learned until such time that their status with respect to frequency can be established.[8] Clearly, an adjective could be classified as *high frequency* when some threshold of occurrence has been reached. The more difficult task is determining that an adjective is *low frequency*. In this case, an appeal to indirect negative evidence would have to be made;

i.e., the failure to satisfy some threshold of occurrence would need to be noticed.

Notwithstanding predictions regarding novel forms, there is an inherent theoretical problem with a rule-based account that is conditioned by base adjective frequency. If frequency of occurrence were a condition for rule application, as noted earlier, every occurrence would have to be listed, including all the suffixed comparative forms. As frequency continued to be tracked and new forms were continually listed, generalizations/rules would have to be repeatedly modified in the face of any conflicting data that are encountered. Presumably, however, some threshold of frequency must be reached before a listed comparative form "counts" enough to cause the rule to be modified. This is necessary to insure against rule modification due to occasional "coinages" or performance errors. All in all, the mechanism would have to be very complex and, since everything needs to be listed and frequency needs to be tracked, there is nothing obvious to be gained by constructing a rule. It is not cognitively economical. Furthermore, in a formulation that is compatible with the data (i.e., one where previously unencountered forms are construed as being of unknown frequency), the rule does not serve to provide a reliable guide for comparative formation.

7.3.1.2. Constraining Disyllabic Suffixation Rules

As noted earlier, Y disyllabics can be straightforwardly accounted for by a phonological condition that restricts application to disyllabics that end in /i/ or, underlyingly, /ɪ/.[9] However, I will argue below that this is not the most parsimonious analysis available.

Although Di Sciullo and Williams (1987) do not discuss disyllabic adjectives other than those ending in *-y*, the research reported in Chapter 4 shows that subjects also prefer the suffixed comparative for real LE, LY and OW disyllabics, but only when these are high frequency adjectives. As with semantically compatible monosyllabics, this preference disappears when disyllabic adjectives of these Ending Types are low frequency adjectives. Given this frequency effect, a rule-generated account of these would have to be similar to that proposed above for monosyllabics (see Note 9) and is similarly unsatisfying. SOME and ER disyllabics never show a suffixed form preference so the question of a lexical suffixation rule applying to these adjectives does not arise.

Turning to novel forms, while LE and OW novel adjectives did not display a suffixed form preference, the LY novel adjective did. This is particularly interesting given that the LY low frequency adjective showed a periphrastic preference. I will address this issue in Section 7.3.1.4 below.

7.3.1.3. Conclusions Regarding a Lexical Rule in the Adult Grammar

The adult grammar appears to contain no general rule for comparative affixation such as the one suggested by Di Sciullo and Williams (1987). Furthermore, to account for the observed frequency effect, frequency would have to be a condition on rule application. The tracking and analyses required to formulate a rule that accurately accounts for the data would be costly, and would not eliminate the need to list suffixed comparative forms. I conclude, then, that no rule for comparative suffixation of any type exists.

Only the data regarding the Y disyllabics argue against this conclusion. In this case, a preference for the suffixed comparative persisted for real adjectives even when they were low frequency, and held even in the case of novel adjectives. However, I propose in Section 7.3.1.4 below that for independent reasons, an overall conservative account is preferable to one that stipulates a phonologically driven comparative rule only for Y disyllabics.

7.3.1.4. Evidence of Conservative Learning and Listing

An alternative approach characterizes the frequency effect as evidence of conservative learning and listing. On this view, suffixed comparative forms are listed in the lexicon. The demonstrated frequency effect is tied to base adjective frequency only insofar as base frequency indirectly reflects the input frequency of the adjective's comparative form. This can account for the earlier observation that it is never the case for any adjective type that high frequency forms are preferred in the periphrastic comparative and low frequency in the suffixed comparative. A nonconservative approach is not incompatible with this observation, but it cannot account for it in any principled way. The fact that the periphrastic is the more generalizable of the two comparative forms suggests that the lack of this particular pattern is directly tied to conservative learning of suffixed comparatives and suggests that the periphrastic is a default which obtains when no suffixed comparative form is listed.

This view is supported by the experimental results obtained when semantically compatible and semantically incompatible monosyllabic adjectives were considered. If it were the case that the frequency effect

reflected base adjective frequency directly (i.e., that base adjective frequency was a condition for rule application), it might be expected that non-gradable monosyllabic adjectives with high frequency bases would either be preferred in the suffixed comparative form or, at least, that the comparative form preference for these forms should differ from that shown for non-gradable low frequency monosyllabics. The fact that it did not[10] suggests that it is not the frequency of the base that matters, but rather, whether or not opportunities are available for hearing and learning an adjective in the suffixed comparative form. The number of such comparative opportunities are, therefore, a function of base frequency and a function of gradability, jointly. That is, it is high frequency, gradable adjectives that are more likely to be used comparatively. Adjectives with high frequency comparative forms (as a result of having base forms that are both high frequency and semantically compatible with the notion of comparison) are more likely to be conservatively learned and listed.

However, as noted above, the data regarding Y disyllabics presents a problem for a conservative account. These adjectives were consistently preferred in the suffixed comparative form regardless of whether they were high frequency or low, real or novel. This is the exactly the pattern that would be expected if a lexical rule of comparative suffixation were in effect that applied to Y disyllabic adjectives. Yet, I will argue that there is no such lexical rule. I will begin by asking how a comparative suffixation rule conditioned by being disyllabic and ending in /i/ (or /ɪ/) could be constructed.

Since all other evidence argues for a conservative account of acquisition, I assume that Y disyllabics, like other adjectives, are listed, at least initially, in both base and synthetic comparative forms. Therefore, on theoretical grounds, there is no more reason to construct a lexical rule of comparative suffixation for Y disyllabics than there is to construct such a rule for any other type of adjective. I will further assume that for Y disyllabics, as for other types of adjectives, it is unlikely that suffixed comparatives are listed with their corresponding low frequency base adjectives, due to the lack of opportunity for comparative formation.

This prompts the question of how Y disyllabics differ from other adjectives. Clearly they differ from monosyllabics in that they can be bimorphemic. As noted by Marchand (1969), the suffix *-y* is an adjectival morpheme that attaches to nouns (e.g., *stringy*) and verbs (e.g., *droopy*). There are many such adjectives in English. Recall, however, that there are cases where adjectives ending in *-y* cannot be analyzed as *X+y*; for example, *pretty* and *happy*. However, these are relatively few in number compared to those that can be analyzed as *X+y* (see Chapter 4, Note 4). We might consider forms such as *pretty* to be pseudo-suffixed; in fact, Marchand notes, for example, that the verb *laze* is backderived from the adjective *lazy*. This suggests that *-y*, even when it is a pseudo-suffix, is identified as a morpheme. It seems then, that *-y* is a well-entrenched adjectival morpheme; Marchand further notes that it is highly productive.

The status of *-y* as a morpheme may be the key to understanding comparative *-er* affixation to it. It seems reasonable to suppose that at some point *-y* is recognized as a morpheme and that it is listed in the

lexicon as such, especially in light of its productivity.[11] It also seems reasonable to suppose that in the same way that a suffixed comparative with a monosyllabic base is listed, the co-occurrence of *-y* with comparative *-er*, is listed as well. That is, the co-occurrence of *-y* and *-er* is learned conservatively and, once listed, blocks *more + Adj* for those adjectives that are products of *-y* affixation. For example, if the comparative adjectival form of *mist* is needed, the lexicon provides the nominal form *mist* with a notation that the adjective is formed by affixation of the morpheme *-y*. The lexical entry for *-y* indicates the legitimate co-occurrence of *-y* with *-er*, and *more + Adj* is blocked. Furthermore, no rule affixing *-er* to Y disyllabics needs be created to capture a generalization that applies to all of these adjectives. Instead, in principle, only a single mental specification of the acceptability of *-y+er*, learned conservatively, is necessary, provided that the learner has recognized the morphemic nature of *-y*. For convenience, I will refer to this proposal as Comparative Morphemic Co-Occurrence (CMC). CMC is completely different from a hypothetical situation in which a lexical rules states that every stem ending in the phoneme /i/ or /ɪ/ takes *-er* in the comparative form. Instead, it states that what are listed in the lexicon for suffixed comparatives are instances of morpheme co-occurrence. Co-occurrence refers to two morphemes and not to a phonological condition on a lexical rule.

This appears to be an instance of the very general Adjacency Condition[12] (Siegel, 1978) or Williams' (1981) reanalysis of it into the Atom Condition. The Atom Condition assumes that words are headed, that heads are the rightmost morphemes, and that affixation is sensitive to features of the head. This reduces to saying that all suffixes are heads and

select subsequent suffixes. In the case of Y disyllabic adjectives, the adjectival suffix *-y* selects *-er*. Therefore, CMC derives from the Atom Condition but makes a specific claim about comparative suffixation; i.e., that it is a case of morpheme selection and does not result from the application of a phonologically conditioned rule.[13]

CMC can account for a number of phenomena that have been observed in the present study. First, it can explain why Y disyllabics were preferred in the suffixed comparative form even when these adjectives are low frequency or novel forms. In addition, it can explain the comparative preference pattern for LY disyllabics. Recall that the suffixed comparative form was preferred for high frequency and novel LY disyllabics but not for those that are low frequency. Conservative learning would predict that high frequency but not low frequency LY suffixed comparatives have been encountered and recorded in the lexicon but it does not explain the suffixed comparative preference for novel LY adjectives. However, CMC can explain this in terms of an analysis of these items as novel *X+y* adjectives. This is reasonable given the ambiguous nature of morpheme boundaries in novel forms: a subject would not be expected to know whether *puttly* is *putt+ly* or *puttl+y*. Finally, CMC, coupled with the apparent productivity of adjectival *-y* (see Note 11), might be invoked to explain the adult subject's affixation of *-ier* to monosyllabic novel adjectives in the Novel Cloze Experiment. That is, subjects may not have analyzed the intended novel monosyllabic adjectives as sounding adjectival enough, prompting them to add *-y*. Once *-y* was added, *-er* followed by CMC.

Furthermore, this proposal is theoretically preferable to one which posits a rule of comparative affixation to Y disyllabic adjectives since it raises no learnability issues with respect to the issue of excluding application to low frequency monosyllabic adjectives. Acquisition of suffixed comparatives for monosyllabic and Y disyllabic adjectives proceeds in the same way. In each case, affixation to a particular morpheme is conservatively learned. In the case of monosyllabics, the morpheme is the adjective itself; in the case of Y disyllabics, the morpheme is adjectival *-y*.

How can this proposal be extended to the other adjectives investigated here; i.e., LE, LY, OW, SOME and ER disyllabics? Why is a morpheme co-occurrence phenomenon not evident with respect to these Ending Types? That is, how do these Ending Types differ from Y?

CMC depends upon morphemic analysis. While Marchand (1969) identifies *-y* as a highly productive derivational morpheme, the other Ending Types vary with respect to this status. For example, Marchand does not even mention any archaic productive adjectival suffixes represented by *-le*, *-ow* or *-er*. He notes that the adjectival suffix *-ly* was productive in Old English but has since been superseded by borrowings and the rise of the suffix *-like* in the 15th century. Furthermore, according to Marchand, the suffix *-some* is only productive currently for deverbal derivations meaning *apt to*, or *apt to cause to* (e.g., *quarrelsome*). The list of *-some* adjectives is relatively short and meaning for these forms is not always transparent.[14]

In addition, compared to the adjectives of the other five Ending Types, Y disyllabics are relatively frequent. Table 7.2 shows the number of lexical forms for each of the Ending Types that was investigated, grouped by frequency of occurrence per million tokens in the Francis and Kucera (1982) corpus.

Table 7.2 Type Frequency for Disyllabic Adjectives

Frequency Bands	Ending Type					
	-y	-le	-ly	-ow	-some	-er
1001+	-	-	-	-	-	-
501+	-	1	-	-	-	-
101+	4	4	3	-	-	-
91+	5	4	3	-	-	1
81+	5	4	3	-	-	1
71+	5	4	3	-	-	-
61+	6	4	4	1	-	1
51+	7	4	5	2	-	1
41+	12	5	6	2	1	1
31+	16	6	6	2	1	1
21+	21	9	11	2	1	4
11+	34	14	16	3	2	7
TOTALS						
Types	115	59	60	12	5	18
Tokens	4145	2859	2370	382	115	588

Note: Tokens were conservatively estimated in each case by taking the sum of the number of types at each occurrence level and multiplying it by the occurrence level threshold (e.g., 11, 21, 31, etc.).

Perhaps it is the case that the higher frequency of *-y* forms along with their greater morphological and semantic transparency (as compared to the other endings that were considered) make *-y* more salient and more identifiable as a morpheme. Hence, the mixed results that were found in these experiments for other Ending Types can be attributed to variability with respect to whether a suffix was perceived to be present. This is compatible with subjects having positive co-occurrence specifications for that suffix plus *-er*.

In sum, the data seem best accounted for by viewing comparative suffixation as instances of conservatively learned and listed morpheme co-occurrences.

7.3.2. Evidence of a Syntactic Rule?

Di Sciullo and Williams (1987) view the periphrastic comparative as generated by a syntactic "rule" that essentially acts as a default. I will argue below that the adult experimental data reported in Chapter 4 provide evidence for such a default and I will consider how this rule might be interpreted in the current minimalist framework.

7.3.2.1. Evidence from Adult Experimental Data

Given the adult experimental data, is it reasonable to characterize *more + Adj* as a default? With respect to real adjectives, a number of facts support this characterization. First, the pattern of comparative choice that emerged as a function of manipulating the frequency (and, in the case of monosyllabics, gradability) of real adjectives suggests that it is. The relevant considerations follow.

In Chapter 3, the shift away from the suffixed comparative form in English was discussed. In fact, the assumptions that suffixed comparatives are listed and that the periphrastic serves as a default, predict that suffixed comparatives should persist diachronically for adjectives that are both frequent and gradable (as frequency of the base and gradability increase opportunities for comparative usage) and decline for those that are low frequency and/or non-gradable. This pattern was evident for all but the Y disyllabics. The latter were preferred in the suffixed comparative form under both conditions of frequency, and it has

been suggested here that the lack of a frequency effect for these adjectives may be attributable to listing the co-occurrence of *-y+er*.

When the base adjective is low frequency and/or non-gradable (i.e., when the opportunities for comparative formation are few), the periphrastic occurs regardless of syllable number or (with the exception of Y disyllabics) Ending Type. This suggests that *more + Adj* is a default; i.e., when no corresponding suffixed comparative is listed for some adjective, the comparative is formed periphrastically. When, on the other hand, a suffixed comparative form is lexically listed (i.e., when its base form is both high frequency and gradable, allowing numerous opportunities to learn and list the suffixed comparative), the periphrastic comparative is blocked. However, unlike Di Sciullo and Williams's (1987) account, the periphrastic comparative is not blocked by the application of a lexical rule, but rather by item-by-item listings in the lexicon.

Furthermore, even the pattern of comparative choice that emerged as the result of manipulating adjective type can, to some degree, be interpreted this way. Recall that the only semantically compatible high frequency adjectives that were preferred in the periphrastic comparative were SOME and ER disyllabics. In fact, among the "high frequency" adjectives, the representative adjectives of these two endings types had the lowest frequency counts (*handsome*: 40; *bitter*: 53) and *bitter* was the only "high frequency" adjective that did not have its corresponding synthetic comparative listed in the Francis and Kucera (1982) corpus. Again, perhaps the lack of opportunities to use these adjectives in the

comparative form, due to their comparatively low frequency, deterred lexical listing, causing the periphrastic to emerge.[15]

If *more + Adj* were a default, an overwhelming periphrastic preference would be predicted for novel adjectives, since no novel suffixed comparative adjective could be lexically listed. This prediction, however, was not supported by the results of the adult novel adjective experiments. In the Novel Relative Experiment, subjects only showed evidence of making real choices for the Y, LY, SOME and ER disyllabics and of these, the periphrastic was chosen only for the Ending Types SOME and ER. Results of the Novel Cloze Experiment only indicated real preferences for Y and LY disyllabics, and these were preferred in the suffixed comparative form. Only in the Novel Absolute Experiment was there any indication of a "default" periphrastic in the sense that all but the Y and LY disyllabics had higher periphrastic than suffixed comparative ratings. Recall, however, that the difference between the means of the periphrastic and suffixed ratings for that experiment was numerically quite small (i.e., less than a half-point on a 5-point rating scale), and except for LE, SOME and ER adjectives, suffixed form ratings were at mid-point or higher.

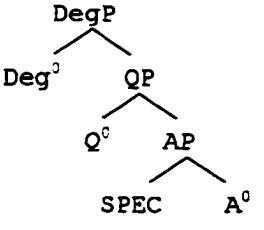
Therefore, it is difficult to conclude that the periphrastic serves as some sort of default in the case of novel adjectives. On the other hand, the evidence from the real adjective experiments is compelling enough to warrant further consideration of the novel adjective findings. I will return to this issue in Section 7.3.2.2 below.

7.3.2.2. Reinterpreting the Syntactic Rule

In Di Sciullo and Williams (1987), *more + Adj* was characterized as a default syntactic rule. Here, the general idea has been retained but it has been reinterpreted as *more support*, making it more compatible with the minimalist framework (Chomsky, 1991, 1993, 1995).

Figure 7.1 represents the underlying structure of the comparative construction, as presented by Corver (1997).[16]

Figure 7.1



Following Emonds (1976), Corver assumes the complementary distribution of *-er* and *more* comparative forms and, as a result, suggests that the two originate in the same position, which would be Q° in the structure represented in Figure 7.1. He speculates that if *-er* were base generated in Q°, affixation would result from head-to-head raising of the adjective in A^{0} to Q°. However, he further notes that under a theory of feature checking, the comparative morphological features would be part of the adjectival word in the lexicon and would be checked against the comparative features of the functional head Q^{0} via head-to-head raising of A^{0} to Q^{0}. These two alternative analyses both succeed in generating *Adj+er* forms, but they differ in ways that can be put to empirical test.

The feature checking analysis is supported by the data presented here. Under this analysis, it could be assumed that a feature in Q^0 that needed to be checked could be checked in one of two ways. If a synthetic comparative were available in the lexicon, it could be inserted into A^0, and raise from A^0 to Q^0 via head-to-head raising; if no synthetic comparative were available, *more* could be inserted in Q^0 to check the feature without movement. Insertion of *more* could be considered an instance of *mo- support* (see Note 3) and be likened, in some ways, to *do support* (Zamparelli, p.c.).

Radford (1997) describes *do support* as a *last resort* in questions and negative declaratives.[17] As Radford notes, in the minimalist framework, the *last resort* condition follows from the more general *economy principle* that he defines as, "A principle which requires that (all other things being equal) syntactic representations should contain as few constituents and syntactic derivations involve as few grammatical operations as possible" (p. 505). *Do support*, unlike movement, is language specific and therefore less economical. In much the same way, *more support* can be seen to apply in just those cases where no lexical item is available that is capable of checking the abstract feature in Q^0 via movement.

However, it is important to note that the economy principle is conditioned by *all other things being equal* and it is interesting that both *do support* and *more support* can apply even in cases where they do not prima facie appear to represent the last resort, syntactically. Frank (1972) points out that *more* can be used with monosyllabics when emphasis is needed.[18] *Do support*, has the same effect; i.e., in

declaratives such as *He does live in New York* (cf. *He lives in New York*).[19]

In the minimalist framework outlined in Chomsky (1991) and consistent with a view of synthetic comparatives as being listed and not rule-generated, the picture of *more + Adj* that emerges is one of a last resort measure to check an abstract feature in Q^0 when the adjective in A^0 is unable to do so, all things being equal.

In more recent minimalist formulations (Chomsky, 1993, 1995), the notion of a support mechanism, in the sense of inserting a morpheme at a late point in the derivation in order to save a derivation from crashing, has been replaced by the concept of competing derivations. In this newer instantiation, assuming that a base adjective is listed in the lexicon, two or four potential comparative derivations exist, depending on whether or not a corresponding suffixed comparative form is also listed. If no suffixed comparative form is listed, the two potential derivations each have the base adjective in A^0; however, one derivation additionally has *more* in Q^0. These two derivations are illustrated in Figures 7.2 and 7.3, respectively.

Figure 7.2

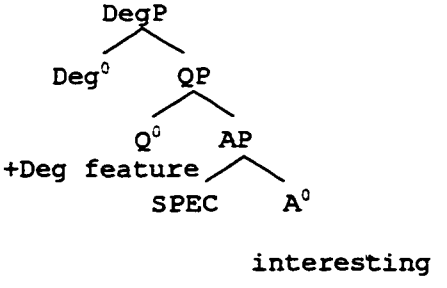
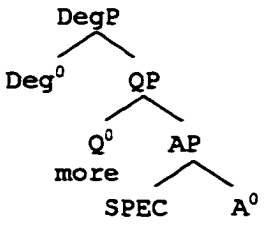


Figure 7.3



The derivation represented in Figure 7.2 crashes since the abstract feature in Q^0 is not checked; on the other hand, in the derivation represented in Figure 7.3, the presence of *more* allows the derivation to obtain.

If a suffixed comparative form is available, four potential derivations exist. These are represented in Figures 7.4 through 7.7, below.

The derivation represented in Figure 7.4 crashes for the same reason as would the derivation represented in Figure 7.2; that represented by Figure 7.7 also crashes. In this case, *more* is superfluous and, therefore, the principle of economy is violated. In fact, the presence of *more* prevents head-to-head raising, hence, checking of the Deg-feature of the adjective as well, which causes the derivation to crash at LF unless, in the system of Chomsky (1995, Chapter 4), the Deg-feature of the adjective is [+interpretable].[20]

Figure 7.4

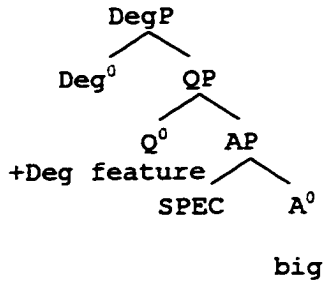


Figure 7.5

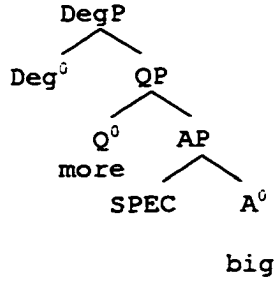


Figure 7.6

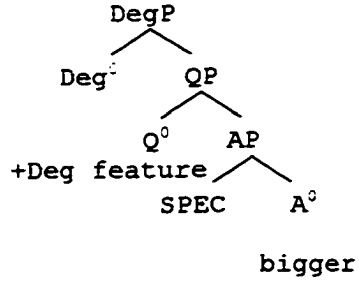
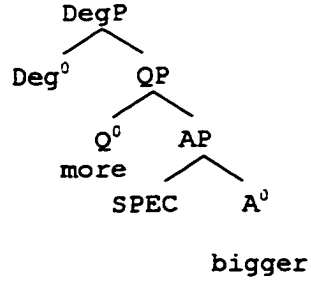


Figure 7.7



Neither of the derivations represented by Figures 7.5 and 7.6 would crash, but presumably that represented by Figure 7.6 would obtain as it favored by the principle of economy, *more support* being more costly as it is language specific.

This analysis seems consistent with a view of the periphrastic as a default. However, if the periphrastic does represent a default, why was it not the overwhelming choice for the novel adjectives? Clearly subjects were treating real, low frequency adjectives differently from novel adjectives.

A *default* has been distinguished from a *rule* in that a default is viewed as having no particular phonological, morphological or syntactic condition on its application. A default needs no specific trigger; it applies automatically "elsewhere", i.e., wherever a non-default does not obtain. Here it has been argued that suffixed comparatives are listed and it is their being listed in the lexicon that blocks *more support* from applying. Conversely, it is the lack of a particular suffixed comparative being listed in the lexicon that creates the circumstance in which the default emerges. In that case, the base adjective is in A^0 and, as it cannot check the abstract Deg-feature in Q^0, *more support* obtains.

In the case of a novel adjective, however, neither the base form nor a suffixed comparative form is listed in the lexicon to be a possible candidate for lexical insertion in A^0. In the absence of a listed base form, some speculation must be made as to whether or not a corresponding comparative form exists. The results of the Novel Relative Experiment

suggest that such speculation is not made in any systematic way, i.e., it is not governed by any obvious morphological or phonological criteria, except in the case of Y and LY (presumably analyzed as Y) disyllabics, where CMC applies automatically to give a positive answer. In sum then, there does seem to be evidence of a *more support* default. However, it does not automatically extend to novel adjectives.

7.3.4. The Adult Grammar: Conclusions

In the previous section, I have argued that suffixed comparative forms are conservatively learned and lexically listed as instances of morpheme co-occurrences. Further, the periphrastic is the result of *more support*, which is a last resort measure that obtains when a suffixed comparative form that is capable of checking an abstract morphological Deg-feature in Q^0 is not available. The availability of a comparative adjective is a function of its frequency of occurrence, which, in turn, is a function of the gradability and frequency of its base. Blocking of *more support* by a listed comparative adjective follows from the principle of economy. I have also suggested that *more support*, like *do support*, can, in the right contexts, obtain even when a listed comparative adjective is available. In cases where neither a base nor its corresponding suffixed comparative counterpart is listed, speakers are free to create either suffixed or periphrastic comparative forms, perhaps by analogy to known forms.

This proposed account of the adult grammar describes the endpoint of the acquisition of the comparative forms; that is, the target grammar for the child learning English. I now turn to a discussion of the child data in an effort to characterize children's grammars.

7.4. The Child Grammar

7.4.1. Evidence of a Lexical Rule? Child Spontaneous Production Data

7.4.1.1. Monosyllabic Adjectives

The database search revealed that both Ross and Mark did produce some suffixed comparatives with monosyllabic bases that did not appear in the corresponding adult sample, suggesting, prima facie, that a generalization is at work. These were Ross's *colder, darker, sicker, shorter* and *grosser,* and Mark's *colder.* However, as these are grammatical forms, it is entirely possible that they were conservatively learned.[21] Only one overgeneralization of the suffixed comparative can be identified for monosyllabics and it appears in a double marked construction: Ross's **more funner.*

7.4.1.2. Disyllabic Adjectives

Recall that no 2-disyllabics appeared in either the child or adult samples. One instance of a disyllabic that appeared in the comparative form in the child data but not in the adult data and which is neither a 1- nor 2-disyllabic was Ross's *pleasanter.* However, since this form is grammatical in many dialects, it cannot necessarily be viewed as rule-generated; i.e., it may also have been conservatively learned.

With respect to Y disyllabics, once again grammatical forms not found in the adult sample were produced by the children; in this case, Ross's *bossier, uglier, screwier* and *foggier,* and Mark's *heavier* and *luckier.* Since the adult experimental data revealed that any Y disyllabic adjective in suffixed comparative form can be generated by the adult grammar, no overgeneralization could possibly exist as evidence of rule application.

In addition to Ross's monosyllabic-based **more funner*, there were only two other identifiable instances of overgeneralization of suffixation. These are recognized because, as they are not grammatical, they were not likely to have been encountered in the input. Both were also produced by Ross and both are also doubly marked for comparison: **more specialer* and **more Mr. Wonderfuler*. It is interesting that in these three cases, no systematicity is evident: **funner* has a monosyllabic adjectival base (that is related to a noun); **specialer* a disyllabic adjectival base; and the base of **Mr. Wonderfuler* is a multisyllabic proper noun. This lack of systematicity argues against these forms having been generated by any sort of rule that is significantly constrained to discriminate suffixed from periphrastic forms in general in the child's language.

7.4.2. Evidence of a Lexical Rule? Child Experimental Data

Turning to the experimental data, 4-year-olds preferred the periphrastic comparative form for both gradable and non-gradable real adjectives (except LE and OW disyllabics), so obviously no rule of suffixation for either monosyllabics or Y disyllabics was in effect. On the other hand, 7-year-olds showed a preference for the suffixed comparative for semantically compatible but not semantically incompatible monosyllabics as well as LE and Y disyllabics, similar to the pattern exhibited by adults. However, there was a high degree of variability within these adjectival types suggesting no real generalization. This variability was echoed in the 7-year-olds' Novel Relative Experiment results; for both the LE and Y Ending Types, one of the two novel adjectives representing each Ending Type was preferred in the suffixed comparative form and the other in the periphrastic.[22] The lack of any evidence of the application of a lexical rule with respect to either the real or novel adjectives in

the child data suggests that learning suffixed comparative forms, at least until the age of 7, proceeds conservatively.

7.4.3. Conclusions Regarding a Lexical Rule in the Child Grammar

There is no suggestion of a lexical rule of comparative suffixation in either the spontaneous production or experimental data. Children's spontaneous production data, reported in Chapter 6, suggest that no rule of comparative *-er* suffixation is formulated by child language learners, at least by the age of 7. While the database search did reveal a preponderance of suffixed comparatives, these, for the most part, mirrored the input. In the experimental data, variability among adjectives within a particular type argues for conservative acquisition.

7.4.4. Evidence of a Periphrastic Default? Child Spontaneous Production Data

Recall that in Chapter 6, it was observed that although Mark's data indicated a higher number of suffixed than periphrastic comparatives, it also showed a higher number of periphrastic comparatives relative to suffixed than did the data of Ross (which mirrored that of the adults). This suggests that younger children may rely more on the periphrastic than do older children.

In Chapter 5, some of the literature that focused on children's developing semantics of comparatives was considered. It was proposed that children go through stages where the meaning of a suffixed comparative adjective is initially equated with the meaning of its corresponding base adjective. In syntactic terms, children may fail to recognize that *-er* can serve as a feature checker.[23] If children do not consistently

distinguish between suffixed comparative and base adjectives, the use of *more* with a suffixed comparative adjective might count as evidence of a default comparative marker. In other words, if, for example, the child does not semantically distinguish *big* from *bigger*, it may be the case that when the notion of degree is particularly salient, *more* is used with either the base or comparative form.[24] The latter case would result in a double marking.

Table 7.3 shows instances of double marking for the two children studied. Double marked adjectives appeared in the production data of both children when they were between the ages of 3 and 5. What might count as a case where the notion of degree is particularly salient? Clearly, the nonlinguistic context of the utterance might contribute to the degree factor. Unfortunately, in a corpus little (if any) information regarding the nonlinguistic context is available. However, if linguistic context is considered, two interesting observations can be made with respect to Ross and Mark's double marked comparatives.

First, three occurred in the linguistic context of a *than* phrase; second, seven appear in the linguistic context of some quantifier such as *any* (*any*more sicker), *a lot*, *a little* and *even*. These are indicated on Table 7.3.

Table 7.3 Double Marked Comparatives: Ross and Mark

Age (Years)	Ross		Mark	
3-4			#more drier	64/1726
			more cleaner	64/1728
4-5				
5-6	@more specialer	61/1113	#more hotter	87/676
	#anymore sicker	64/1809	#more squishier	91/14
	@more lighter	55/658		
	more bigger	81/683		
6-7				
7-8	#more busier	84/2086, 84/2111		
	#@more Mr. Wonderfuler	87/137		

Note: "@" indicates *than* phrase; "#" indicates quantifier. Numbers indicate file/line of the utterance which can be found in Appendix F.

In addition, there was one instance of *more + Adj* where the adjective appeared in the synthetic comparative in the adult data: Mark's *more big* (79/300, at age 3). Since *bigger* is claimed to be learned relatively early with respect to other comparative adjectives (e.g. Bartlett, 1976) and in fact was already being produced by Mark before the age of 2, it might well be simply a performance error. On the other hand, it is interesting that *more big* appears in the linguistic context of the quantifier *a little*. That is, if *bigger* and *big* are semantically indistinguishable, perhaps the presence of *a little* emphasizes the notion of degree, and this notion is made more salient by *more*.

Therefore, the spontaneous production data offers some evidence of a default *more + Adj*, in terms of Mark's suffixed to periphrastic ratio. In addition, given what is known about children's early interpretation of comparative adjectives, double marked adjectives may provide some positive support.

7.4.5. Evidence of a Periphrastic Default? Child Experimental Data

In the Real Relative Experiment, 4-year-olds showed a preference for the periphrastic comparative across all adjective types except LE and OW disyllabics. Therefore, it is reasonable to interpret *more + Adj* as representing a default. This periphrastic preference is not surprising in view of the fact noted earlier that young children often do not distinguish between synthetic comparatives and their corresponding base adjectives, coupled with the fact that the test items were couched in the linguistic context of a *than* phrase. If the *than* phrase does, as suggested above, make the notion of degree salient, children may see *more + Adj* as being capable of carrying that notion; i.e., they may not yet fully recognize this ability in suffixed comparatives.

The 7-year-olds abandoned the periphrastic and favored the suffixed comparative for semantically compatible monosyllabics as well as LE and Y disyllabics. Of the adjectives for which the adults preferred the suffixed comparative, these were the ones that had the highest frequency counts; LY and OW adjectives, which were preferred in the suffixed comparative by the adults but not by the 7-year-olds, were of lower frequency. Monosyllabic, and LE and Y disyllabic adjectives were also the only phonological types that appeared in the suffixed comparative form in the adult sample from the database search. The periphrastic remained the children's preferred comparative form for all other adjective types except for OW disyllabics, for which no preference was indicated.

Seven-year-olds' performance on the Novel Adjective Experiment resembles that of the adults in some ways. Neither group showed a comparative form preference for monosyllabics or for LE disyllabics. However, unlike the adults, the 7-year-olds showed no comparative form preference for the Y disyllabic (preferring one of the two Y disyllabic in the suffixed comparative and the other in the periphrastic) or the SOME and ER disyllabic adjectives, and showed a periphrastic preference for LY and OW disyllabics.

7.4.6. Conclusions Regarding a Periphrastic Default in the Child Grammar

The periphrastic comparative is the preferred form for the 4-year-olds; only LE and OW disyllabics are preferred in the suffixed comparative. The 7-year-olds extend the suffixed form preference to include semantically compatible, high frequency monosyllabics and Y disyllabics. Overall, we see a movement away from the periphrastic and toward the suffixed comparative, but closely shadowing the adult grammar. In the child grammar, the periphrastic can be seen to represent the default in the sense that, under experimental conditions, given the two alternatives, children choose it when they do not yet have complete feature representations of the suffixed form.[25]

7.5. Acquisition of Comparative Forms

7.5.1. Issues of Learnability

In Chapter 2, two accounts of lexical acquisition were reviewed: a rule-based approach, such as suggested by Pinker (1989), and Fodor's (1985) modified conservative approach. Note, however, that both of these accounts depend on initial conservatism, so item-by-item learning must

proceed in any case. These two approaches differ with respect to how they characterize the source of overgeneralized forms. For Pinker (1989), instances of overgeneralization may be the products of broad-range (property-predicting) or narrow-range (existence-predicting) rules. Existence-predicting rules can apply even if their exceptions are, in Baker's (1979) term, embarrassing. Retreating from overgeneralization in this case is problematic and costly. Fodor (1985), on the other hand, proposes that rules with benign exceptions are existence-predicting while rules with embarrassing exceptions are merely property-predicting. She suggests that children are innately predispositioned to distinguish the cases in which the two types of rules apply.

I have argued here that there is no evidence that acquisition of the suffixed comparative form is rule-based. Child spontaneous production data revealed few identifiable instances of overgeneralization of the suffix, and data regarding monosyllabic adjectives and patterns of comparative form preference that are evident under different frequency conditions appear to be indicative of a lexical listing approach.

The persistence of suffixed comparative preferences for Y disyllabic adjectives has been interpreted as the result of learning that the adjectival morpheme *-y* co-occurs with comparative *-er*, and was identified as an instance of Comparative Morpheme Co-Occurrence. CMC additionally accounts for a number of other observations that were made regarding the data and seems to be a particular case of the Atom Condition (Williams, 1981). Under the assumption that the Atom Condition is a principle of UG, it need not be learned. All that needs to be learned by the child is 1) that *-er* is a morpheme, 2) that it has the ability to check a Deg-feature

in Q^0, and 3) the morphemes with which it co-occurs. Furthermore, the periphrastic comparative emerged as a default and not the product of a conditioned rule, thereby accounting for its generalizability.

7.5.2. The Process of Acquisition

I begin by assuming that UG provides the child with the extended adjectival projection that was posited by Corver (1997)(see Note 23). A Deg-feature in Q^0 must be checked and can be done so by head-to-head raising of A^0 to Q^0, when A^0 contains a suffixed comparative adjective. It is the morpheme *-er* that is capable of checking the Deg-feature. I assume a stage in which children do not identify *-er* as a morpheme nor do they recognize the suffixed comparative as having feature checking ability. The fact that base and comparative adjectives simultaneously share distributional privileges (Gathercole, 1983) in spontaneous production suggests this to be the case. Here it is being proposed that when the need to check the Deg-feature is particularly salient, children will use *more*, providing they have recognized that *more* can be used with adjectives. This can account for much of the double marking in the spontaneous production data as well as the periphrastic bias displayed in the experimental data of the 4-year-olds.

The experimental data reveal that, by the age of 7, children have isolated *-er* as a morpheme, have begun to recognize its ability to check the Deg-feature, and are conservatively learning the morphemes with which it can co-occur. It is interesting that by 7, children do not display knowledge of the co-occurrence of *-y* and *-er*. However, this can be explained when one considers that research in the acquisition of derivational processes has revealed that adjectival *-y* is not used

productively until quite late, suggesting that young children do not analyze it as a morpheme.[26] Since CMC depends upon morphemic analysis, it would be expected that knowledge of the co-occurrence of *-y* and *-er* would be delayed, thereby accounting for the data presented here.

From a learnability perspective, this account raises no learnability paradox and stipulates no new mechanism, making it theoretically preferable to a rule-based account of acquisition for the suffixed comparative form.

7.6. Directions for Future Research

The research presented here raises a number of questions yet to be answered. An obvious question concerns when children begin to recognize the morphemic nature of *-y* and its co-occurrence with comparative *-er*.

A deeper question concerns the nature of lexical acquisition in general. It has been proposed here that acquisition of suffixed comparatives proceeds conservatively; that is, that children do not create a phonologically conditioned rule for affixation of *-er*. Eventually, however, they recognize the morphemic status of *-y* and they observe its co-occurrence with *-er*. Under this analysis, then, *-er* affixes to a single morpheme learned conservatively; therefore, comparative suffixation is not genuinely productive even though it applies to all adjectives ending in *-y*. On the other hand, once *-y* is recognized as an adjectival morpheme and listed as such, its affixation to nouns and verbs appears to be extremely productive, extending to novel words and even to multi-word compounds (e.g., *salt-and-peppery*). It seems then, that -y may

be acquired non-conservatively, unlike comparative *-er*. This points to a fundamental question raised by Fodor (1985) which remains unanswered; i.e., whether there is a principled way to distinguish those linguistic items for which children do make generalizations from those for which they do not. If there is not, it is unclear how a child can avoid trying to find a generalization when there is none, or failing to detect a generalization when there is one. If learners do have some innate criterion that guides them in this respect, we do not yet know what it is.

Another interesting line of research centers on the presuppositions of novel word experiments. Since low frequency and novel adjectives were treated quite differently in the research presented here, one can question the validity of extending experimental findings regarding novel forms to real forms. Furthermore the somewhat variable results of the three novel experiments indicate that different tasks yield different results and the reasons for this need to be explored. It may make a difference whether subjects believe novel test items are real, low frequency words, or know that they are invented.

Finally, given the fact that traditional predictions regarding monosyllabics and disyllabics with respect to the distribution of the comparative forms was not supported by the experimental data, it would be interesting to test predictions made for multisyllabic adjectives, as well as predictions concerning the distribution of the suffixed and periphrastic superlative forms.

Chapter 7: NOTES

1. Di Sciullo and Williams (1987) talk about a morphological rule. Here I assume that a morphological rule is one aspect of a lexical rule which acts upon the form and meaning of known lexical items to produce new lexical items.

2. Here I am distinguishing a *rule* from a *default* in the sense that a *rule* has restricted conditions (e.g., syntactic, morphological, phonological) governing its application. A *default*, being more general, applies only in those cases where some specific criteria have not been met. The notion of default as it is being used here can be likened to the Elsewhere Condition of lexical phonology (Kiparsky, 1982).

3. M. den Dikken (p.c.) notes that *more support* may be a particular case of a more general mechanism that can be referred to as *mo- support*, which can additionally extend to superlative cases (*most support*). It is interesting that the *-re* of *more* can be compared to the *-er* comparative suffix, which also appeared as *-re* in Middle English (see Chapter 3, Note 2).

4. I leave open the question as to whether this would be conceived of as separate rules for each adjective type (MS, Y, LE, LY and OW) or a single rule where each adjective type represented an additional condition.

5. While it is possible that periphrastic constructions are listed instead of or in addition to synthetic items, it seems more reasonable to suppose that only the lexicalized form is listed, especially given the apparent generalizability of the periphrastic.

6. It might be argued that non-gradable items simply wouldn't occur often enough in the comparative to be listed and so be available in the lexicon as half of a base/comparative pair. While this is true, a phonologically conditioned rule would predict for rare cases where one might want to use a comparative form for a non-gradable adjective (e.g., *Somehow, this approach seems righter/more right*), the suffixed form would be preferred. This prediction was not supported by the data.

7. It should be noted, however, that a frequency effect was found in the relative judgment data for Y disyllabics as well, even though the suffixed comparative was preferred for both high and low frequency forms. One explanation might be that frequency affects the likelihood of morphemic analysis of *stem+y* for pseudo-affixed Y adjectives (see Section 7.3.1.4).

8. Here a "guess" might take the form of analogizing from previously learned items where the basis for the analogy may vary along a number of dimensions.

9. Since the variable *semantic compatibility* was not introduced for disyllabics in the experimental design, whether this would be an additional condition is an empirical question. Of course, the view being argued for here would predict an effect of gradability for all but the Y disyllabics.

10. Recall that in the Real Relative Experiment, neither high nor low frequency non-gradable adjectives were preferred in the suffixed comparative form. Furthermore, no difference was found for choice of comparative type among the three adjective groups preferred in the periphrastic: low frequency, gradable adjectives, and high and low frequency non-gradable adjectives. That is, there was *no* double effect of being both low frequency and non-gradable so there was no separate effect of frequency. Also, while it is true that in the Real Absolute Experiment a difference was found for these three groups as indicated by a two-way interaction of Type (SC/LF, SI/HF and SI/LF) by Comparative Type, it only held by subject and not by item.

11. The productivity of the adjectival derivational morpheme *-y* suggests that, contrary to the analysis of *-er* presented here, suffixation of *-y* may be rule-driven, especially given that subjects affixed *-ier* to novel monosyllabic adjectives in the Novel Cloze Experiment. This is an empirical question for future research and will not be pursued here.

12. The Adjacency Condition (Siegel, 1978) which limits a morphological process to being conditioned only by selection restrictions of the most recently attached morpheme, was unable to account for the fact that prefixation has no effect on subsequent suffixation. Prefixes are not heads under the Atom Condition (Williams, 1981), which assumes that heads are rightmost morphemes.

13. CMC can also account for multisyllabic adjectives that have suffixed comparative forms, such as *unhappier* (see Chapter 4, Note 3). Non-prefixed multisyllabic adjectives that end in *-y* seem somewhat less acceptable when affixed with *-er*, (?*paperier*) but this may be attributed to the occurrence of three adjacent unstressed syllables in such words.

14. The list of SOME adjectives is limited and includes the following, which were drawn from a searchable electronic dictionary of approximately 32,000 English words: *awesome, bothersome, burdensome, cumbersome, fearsome, fulsome, gruesome, handsome, irksome, loathsome, lonesome, mettlesome, nettlesome, noisome, quarrelsome, tiresome, toilsome, troublesome, unwholesome, venturesome, wearisome, wholesome, winsome, worrisome.*

15. It is an open question what the cut-off frequency is, and test item selection was limited by the language. That is, the adjectives chosen to represent high frequency 2-disyllabic forms were the highest available. The results reported here suggest that the relevant cut-off may, in fact, be higher than expected.

16. This structure is a modification of one posited by Bresnan (1973). Corver adopts Bresnan's *split degree system* hypothesis; i.e., there are two different types of degree words that appear under different nodes in the structure. Corver, extending and modifying Bresnan's analysis, distinguishes between determiner-like degree words (*as, how, too,* and *so*) which head DegP, and quantifier-like degree words (*more, less, enough* and a functional dummy quantifier *much*) that head QP. He differs, however, from Bresnan in arguing that the lexical phrase AP is contained within the functional domain of the extended adjectival projection.

17. For example, in questions in English (with the exception of local subject *wh*-questions), *do support* obtains in just those cases where there is no other auxiliary available that can undergo inversion; in negatives, it applies when raising is blocked by *not*.

18. H. Cairns (p.c.) notes that the extension of the periphrastic comparative to adjectives that usually have suffixed comparative forms seems to be accompanied by contrastive stress.From an acquisition perspective, as we are assuming that *more + Adj* is not listed in the lexicon, learning that it is an option for a particular adjective must take the form of indirect negative evidence where a suffixed form is expected but does not obtain. Children need to learn the conditions under which lexical blocking is prevented. McDaniel and Maxfield (1992), investigating children's Principle B violations, found that children are often not sensitive to contrastive stress. Therefore, in this case, children may not realize that some periphrastic uses would require contrastive stress in order to override blocking by the synthetic comparative.

19. To account for this effect, perhaps an additional functional node with an emphasis feature (EMPH) intervenes between A^0 and Q^0 and prevents head-to-head raising. A similar account might be extended to emphatic *do support*. In that case, the emphasis feature would block raising of the verb.

20. Chomsky (1995) introduces a distinction between [+interpretable] and [-interpretable] features; it is only the latter that needs to be checked, i.e., eliminated. So, if *bigger* has a [+interpretable] Deg-feature, the inability of the adjective to raise to Q^0 in the derivation represented in Figure 7.7 won't cause it to crash. Nonetheless, the derivation represented in Figure 7.6 will be favored over that of Figure 7.7 by the principle of economy.

21. In fact, both Ross and Mark produced *colder* between the ages of 3 and 4; since Ross is older, there is evidence that Mark heard *colder* in input from his sibling.

22. Novel data for the 4-year-olds were not considered, due to an apparent reliance on a second position strategy. Even though seven of the twelve novel test items chosen by the 7-year-olds were second in presentation order, it was argued in Chapter 6 that this strategy was not apparent among these children based on their performance in the real adjective experiment and with respect to novel fillers. In any case, 7-year-olds seem to have no strong intuitions regarding these forms.

23. Blackwell (1998) reports that quantifiers appear later than degree words in child data and notes that if Corver's (1997) split degree hypothesis is correct, the functional structure of AP is present, supporting the continuity hypothesis (Pinker, 1984). Therefore, what needs to be learned by the child is that *-er* is a morpheme and, further, that it has feature checking capacity.

24. That is, of course, once the ability of *more* to modify adjectives has been recognized.

25. *More* may be more salient simply because it is a separate word and children are familiar with many of its semantic properties even prior to recognition that it can modify adjectives.

26. Derwing (1976), using an elicitation task with novel forms, reports that only 30% of the responses from early school aged children involving adjectival *-y* were correct.

Appendix A: Filler Adjective Pairs

A. Grammatical vs. Ungrammatical

crowded/*crowdy	*insweet/not sweet
lovable/*lovent	*funnish/funny
lifelike/*lifish	*mysteriful/mysterious
crunchy/*crunchish	*disaudbile/inaudible
discourteous/*incourteous	*talentful/talented
exciting/*excitey	*scarous/scary
hairy/*hairish	*artistive/artistic
skinny/*skinish	*disnice/not nice

B. Grammatical vs. Grammatical**

impatient/not patient	unafraid/not afraid
not human/inhuman	not considerate/inconsiderate
unkind/not kind	untrustworthy/not trustworthy
unhelpful/not helpful	not agreeable/disagreeable

Note: These also mimic the affix/periphrastic choice presented by the comparatives. They are not, however, identical in meaning, and based on the context in which they are presented, one may be semantically preferred.

C. Ungrammatical vs. Ungrammatical

*inacceptable/*disacceptable	*dirtous/*dirtful
*luckent/*luckful	*inbecoming/*disbecoming
*foolic/*foolsome	*wealthlike/*wealthish
*dustlike/*dustful	*disguilty/*inguilty

Appendix B: Real Absolute Experiment Questionnaire/Adult

Practice:

P1. That story was long and boring to me.
P2. It is disusual for Debby to lie.
P3. Joe's father was truthish in answering the question.
P4. His whereabouts were unknown for a long time.

Version A: Block 1

1. Bob's dog is friendlier than he used to be.
2. The store was crowded last Saturday.
3. The teacher's answer was more right than Mike's.
4. My boss is disagreeable in the morning.
5. This whipped cream is insweet.
6. Betty's ticket was voider than Linda's.
7. My bed is more narrow than yours.
8. His behavior was inhuman.
9. His father is laxer than his mother.
10. My hands are dirtful from digging in the garden.
11. My backpack is more heavy than yours.
12. He was found inguilty of the crime.
13. This ladder is shorter than that one.
14. The princess was not kind to the queen.
15. They were foolsome for not paying attention.
16. My game is simpler than yours.
17. My grandfather is more feeble than my grandmother.
18. She is not patient with children.
19. Your pay is meagerer than mine.
20. That clown looks funnish in his big shoes.
21. Everyone thinks a fox is more sly than a donkey.
22. Your necklace is more fake than mine.
23. I think puppies are so lovable.
24. He looks very mysteriful with his eye patch.
25. This flower is deader than that one.
26. That statue is so lifelike.
27. That dress is very disbecoming on her.
28. The soda is more cold than the lemonade.
29. Sandy's boss is stingier than mine.
30. Their message was disaudible because of all the noise.
31. Being late is more irksome than being early.
32. These cookies are crunchy.

Version A: Block 2

33. Your mother is very talentful at knitting.
34. My aunt is older than yours.
35. Leslie is muter than Alison.
36. She is not helpful to her sister.
37. This medicine is more bitter than the other.
38. He looks more gaunt than he used to.
39. That movie was very scarous.
40. Her brother is handsomer than mine.
41. He is often discourteous to others.
42. Superman is not afraid of Batman.
43. Her hair is more long than her sister's.
44. His behavior was viler than anyone's.
45. They became very wealthish by playing the stock market.
46. She is artistive in her own way.
47. My music is mellower than yours.
48. The dog is happier than the cat.
49. That story is exciting for children to read.
50. He won the game because he was luckful.
51. That model is more shapely than the other.
52. Wood is brittler than clay.
53. That dog is very hairy.
54. His friend was disnice to me.
55. Your room is more little than mine.
56. She got very skinny by dieting.
57. The pie is more whole than the cake.
58. My daughter is inconsiderate of my feelings.
59. Her actions were disacceptable to her superiors.
60. Ann's mistake was wronger than mine.
61. The furniture is very dustful.
62. This teacup is more dainty than that one.
63. Most people are not trustworthy with money.
64. That wolf is more lone than the other.

Version B: Block 1

1. Bob's dog is more friendly than he used to be.
2. The store was crowded last Saturday.
3. The teacher's answer was righter than Mike's.
4. My boss is disagreeable in the morning.
5. This whipped cream is insweet.
6. Betty's ticket was more void than Linda's.
7. My bed is narrower than yours.
8. His behavior was inhuman.
9. His father is more lax than his mother.
10. My hands are dirtful from digging in the garden.
11. My backpack is heavier than yours.
12. He was found inguilty of the crime.
13. This ladder is more short than that one.
14. The princess was not kind to the queen.
15. They were foolsome for not paying attention.
16. My game is more simple than yours.
17. My grandfather is feebler than my grandmother.
18. She is not patient with children.
19. Your pay is more meager than mine.
20. That clown looks funnish in his big shoes.
21. Everyone thinks a fox is slyer than a donkey.
22. Your necklace is faker than mine.
23. I think puppies are so lovable.
24. He looks very mysteriful with his eye patch.
25. This flower is more dead than that one.
26. That statue is so lifelike.
27. That dress is very disbecoming on her.
28. The soda is colder than the lemonade.
29. Sandy's boss is more stingy than mine.
30. Their message was disaudible because of all the noise.
31. Being late is irksomer than being early.
32. These cookies are crunchy.

Version B: Block 2

33. Your mother is very talentful at knitting.
34. My aunt is more old than yours.
35. Leslie is more mute than Alison.
36. She is not helpful to her sister.
37. This medicine is bitterer than the other.
38. He looks gaunter than he used to.
39. That movie was very scarous.
40. Her brother is more handsome than mine.
41. He is often discourteous to others.
42. Superman is not afraid of Batman.
43. Her hair is longer than her sister's.
44. His behavior was more vile than anyone's.
45. They became very wealthish by playing the stock market.
46. She is artistive in her own way.
47. My music is more mellow than yours.
48. The dog is more happy than the cat.
49. That story is exciting for children to read.
50. He won the game because he was luckful.
51. That model is shapelier than the other.
52. Wood is more brittle than clay.
53. That dog is very hairy.
54. His friend was disnice to me.
55. Your room is littler than mine.
56. She got very skinny by dieting.
57. The pie is wholer than the cake.
58. My daughter is inconsiderate of my feelings.
59. Her actions were disacceptable to her superiors.
60. Ann's mistake was more wrong than mine.
61. The furniture is very dustful.
62. This teacup is daintier than that one.
63. Most people are not trustworthy with money.
64. That wolf is loner than the other.

Appendix C: Real Relative Experiment Questionnaire/Adult

Practice:

P1. A. Janet is disyoung anymore.
B. Janet is inyoung anymore.

P2. A. Mark's dad is well liking by everyone.
B. Mark's dad is well liked by everyone.

P3. A. His sister is awesome at playing soccer.
B. His sister is awelike at playing soccer.

P4. A. She is not eligible for the prize.
B. She is ineligible for the prize.

Block 1

1. a. Bob's dog is friendlier than he used to be.
b. Bob's dog is more friendly than he used to be.

2. a. The store was crowded last Saturday.
b. The store was crowdy last Saturday.

3. a. The teacher's answer was more right than Mike's.
b. The teacher's answer was righter than Mike's.

4. a. My boss is not agreeable in the morning.
b. My boss is disagreeable in the morning.

5. a. This whipped cream is insweet.
b. This whipped cream is not sweet.

6. a. Betty's ticket was voider than Linda's.
b. Betty's ticket was more void than Linda's.

7. a. My bed is more narrow than yours.
b. My bed is narrower than yours.

8. a. His behavior was not human.
b. His behavior was inhuman.

9. a. His father is more lax than his mother.
b. His father is laxer than his mother.

10. a. My hands are dirtous from digging in the garden.
b. My hands are dirtful from digging in the garden.

11. a. My backpack is heavier than yours.
b. My backpack is more heavy than yours.

12. a. He was found disguilty of the crime.
b. He was found inguilty of the crime.

13. a. This ladder is shorter than that one.
b. This ladder is more short than that one.

14. a. The princess was unkind to the queen.
    b. The princess was not kind to the queen.

15. a. They were foolic for not paying attention.
    b. They were foolsome for not paying attention.

16. a. My game is more simple than yours.
    b. My game is simpler than yours.

17. a. My grandfather is more feeble than my grandmother.
    b. My grandfather is feebler than my grandmother.

18. a. She is impatient with children.
    b. She is not patient with children.

19. a. Your pay is meagerer than mine.
    b. Your pay is more meager than mine.

20. a. That clown looks funnish in his big shoes.
    b. That clown looks funny in his big shoes.

21. a. Everyone thinks a fox is slyer than a donkey.
    b. Everyone thinks a fox is more sly than a donkey.

22. a. Your necklace is more fake than mine.
    b. Your necklace is faker than mine.

23. a. I think puppies are so lovable.
    b. I think puppies are so lovent.

24. a. He looks very mysteriful with his eye patch.
    b. He looks very mysterious with his eye patch.

25. a. This flower is deader than that one.
    b. This flower is more dead than that one.

26. a. That statue is so lifelike.
    b. That statue is so lifish.

27. a. That dress is very inbecoming on her.
    b. That dress is very disbecoming on her.

28. a. The soda is more cold than the lemonade.
    b. The soda is colder than the lemonade.

29. a. Sandy's boss is stingier than mine.
    b. Sandy's boss is more stingy than mine.

30. a. Their message was disaudible because of all the noise.
    b. Their message was inaudible because of all the noise.

31. a. Being late is more irksome than being early.
    b. Being late is irksomer than being early.

32. a. These cookies are crunchy.
    b. These cookies are crunchish.

Block 2

33. a. Your mother is very talentful at knitting.
    b. Your mother is very talented at knitting.

34. a. My aunt is more old than yours.
    b. My aunt is older than yours.

35. a. Leslie is more mute than Alison.
    b. Leslie is muter than Alison.

36. a. She is unhelpful to her sister.
    b. She is not helpful to her sister.

37. a. This medicine is bitterer than the other.
    b. This medicine is more bitter than the other.

38. a. He looks more gaunt than he used to.
    b. He looks gaunter than he used to.

39. a. That movie was very scarous.
    b. That movie was very scary.

40. a. Her brother is more handsome than mine.
    b. Her brother is handsomer than mine.

41. a. He is often discourteous to others.
    b. He is often incourteous to others.

42. a. Superman is unafraid of Batman.
    b. Superman is not afraid of Batman.

43. a. Her hair is longer than her sister's.
    b. Her hair is more long than her sister's.

44. a. His behavior was viler than anyone's.
    b. His behavior was more vile than anyone's.

45. a. They became very wealthlike by playing the stock market.
    b. They became very wealthish by playing the stock market.

46. a. She is artistive in her own way.
    b. She is artistic in her own way.

47. a. My music is more mellow than yours.
    b. My music is mellower than yours.

48. a. The dog is happier than the cat.
    b. The dog is more happy than the cat.

49. a. That story is exciting for children to read.
    b. That story is excitey for children to read.

50. a. He won the game because he was luckent.
    b. He won the game because he was luckful.

51. a. That model is shapelier than the other.
    b. That model is more shapely than the other.

52. a. Wood is more brittle than clay.
    b. Wood is brittler than clay.

53. a. That dog is very hairy.
    b. That dog is very hairish.

54. a. His friend was disnice to me.
    b. His friend was not nice to me.

55. a. Your room is more little than mine.
    b. Your room is littler than mine.

56. a. She got very skinny by dieting.
    b. She got very skinish by dieting.

57. a. The pie is wholer than the cake.
    b. The pie is more whole than the cake.

58. a. My daughter is not considerate of my feelings.
    b. My daughter is inconsiderate of my feelings.

59. a. Her actions were inacceptable to her superiors.
    b. Her actions were disacceptable to her superiors.

60. a. Ann's mistake was more wrong than mine.
    b. Ann's mistake was wronger than mine.

61. a. The furniture is very dustlike.
    b. The furniture is very dustful.

62. a. This teacup is daintier than that one.
    b. This teacup is more dainty than that one.

63. a. Most people are untrustworthy with money.
    b. Most people are not trustworthy with money.

64. a. That wolf is loner than the other.
    b. That wolf is more lone than the other.

Appendix D: Novel Relative Experiment Questionnaire/Adult and Child

Block 1

1. a. You are inteyal when you don't win.
   b. You are disteyal when you don't win.

2. a. My favorite TV show is dempier than yours.
   b. My favorite TV show is more dempy than yours.

3. a. That movie was harseable.
   b. That movie was harsey.

4. a. My uncle is more sant than my father.
   b. My uncle is santer than my father.

5. a. Maggie's shoes look unrelled with that dress.
   b. Maggie's shoes look disrelled with that dress.

6. a. His computer is dillower than yours.
   b. His computer is more dillow than yours.

7. a. The party was sooding last night.
   b. The party was soody last night.

8. a. That TV show is more kittle than the other one.
   b. That TV show is kittler than the other one.

9. a. My trip was junestful.
   b. My trip was junestlike.

10. a. My answer was sturter than yours.
    b. My answer was more sturt than yours.

11. a. The weather is kentic for this time of year.
    b. The weather is kenful for this time of year.

12. a. That car is more felsome than mine.
    b. That car is felsomer than mine.

Block 2

13. a. The teacher is disclasted about her class.
    b. The teacher is inclasted about her class.

14. a. My hat was more rilty than yours.
    b. My hat was riltier than yours.

15. a. Your father was lisetous yesterday.
    b. Your father was lisetful yesterday.

16. a. My book seems saller than yours.
    b. My book seems more sall than yours.

17. a. That desk looks puckable in that small room.
    b. That desk looks puckful in that small room.

18. a. Nick's truck is more fumper than yours.
    b. Nick's truck is fumperer than yours.

19. a. That dinner was dranful without dessert.
    b. That dinner was dranable without dessert.

20. a. Doctors are ruppler than teachers.
    b. Doctors are more rupple than teachers.

21. a. Mike's lamp would be inteshful with a new light bulb.
    b. Mike's lamp would be unteshful with a new light bulb.

22. a. That magazine is more zelk than the other.
    b. That magazine zelker than the other.

23. a. That birthday cake looks nartish without a candle in it.
    b. That birthday cake looks nartable without a candle in it.

24. a. Rita's house is puttlier than yours.
    b. Rita's house is more puttly than yours.

Appendix E: Follow-Up Novel Experiment Questionnaires/Adult

Novel Cloze Practice:

1. There was a lot of **garl** on that building;
   I had no idea it was such a _____ building.

2. Jack is very **prul;**
   I wish he were _____ instead.

Novel Absolute Practice:

1. Mary's mother is awfully **bilked;** on the other hand,
   her father is a totally unbilked individual.

2. Larry's suitcase is full of **fland;**
   you might say it is a very flandful suitcase.

Part I: Novel Cloze Experiment

1. Your father is **teyaling** his watch;
   I didn't know watches were _____ these days.

2. My favorite TV show is very **dempy,**
   but your favorite is a good deal _____ than mine.

3. The movie he directed had a lot of **harse** in it; I hope that all
   the movies he directed aren't as _____ as this one.

4. My uncle is kind of **sant,**
   but my father is a lot _____ than my uncle.

5. Maggie's shoes look **unrelled** with that dress; on the other hand,
   her hat looks quite _____ with it.

6. His computer is awfully **dillow,**
   but Jane's computer is even _____ than his.

7. Linda's party had a lot of **sood;** I wonder if
   all of her parties are as _____ as that one.

8. The rice is sort of **kittle,**
   but the beans are much _____ than the rice.

9. My trip was full of **junest;**
you could say it was a very trip.

10. My answer was quite **sturt,**
but Bill's answer was even than mine.

11. The kitchen always resembles **kent** after dinner,
but I never saw it this before.

12. Cathy's car is kind of **felsome,**
but Pete's car is much than hers.

13. The lawyer was **disclasted;**
I prefer lawyers that are instead.

14. My hat was rather **rilty,**
but Theresa's hat was even than mine.

15. You are **lisetous** only when you lose;
when you win, you are instead.

16. My book seems very **sal,**
but Nancy's book is a good deal than mine.

17. The meadow next to the wheat field is full of **puck;** I wonder if
all the meadows are as as that one.

18. Nick's truck is quite **fumper,**
but Carl's truck is much than Nick's.

19. That dinner was very **dran;**
I prefer food that is instead.

20. Doctors may be extremely **rupple,**
but teachers are even than doctors.

21. Mike's lamp is **intesh;**
I think he needs one that is instead.

22. Magazines are pretty **zelk,**
but newspapers are much than magazines.

23. Without a candle in it, that birthday cake resembles a **nart**; it is a really _____ cake.

24. Rita's house is very **puttly**, but Jim's house is even _____ than Rita's.

25. There's a lot of **blin** in this sandwich; I don't usually like sandwiches as _____ as this one.

Part II: Novel Absolute Experiment: Version A

1. Your father is **teyaling** his watch;
   I didn't know watches were teyalable these days.

2. My favorite TV show is very **dempy**,
   but your favorite is a good deal dempier than mine.

3. The movie he directed had a lot of **harse** in it;
   I hope that all the movies he directed aren't as harseable as this one.

4. My uncle is kind of **sant**,
   but my father is a lot more sant than my uncle.

5. Maggie's shoes look **unrelled** with that dress;
   on the other hand, her hat looks quite relled with it.

6. His computer is awfully **dillow**,
   but Jane's computer is even dillower than his.

7. Linda's party had a lot of **sood**;
   I wonder if all of her parties are as soody as that one.

8. The rice is sort of **kittle**,
   but the beans are much more kittle than the rice.

9. My trip was full of **junest**;
   you could say it was a very junesting trip.

10. My answer was quite **sturt**,
    but Bill's answer was even sturter than mine.

11. The kitchen always resembles **kent** after dinner,
    but I never saw it this kentable before.

12. Cathy's car is kind of **felsome**,
    but Pete's car is much more felsome than hers.

13. The lawyer was **disclasted**;
    I prefer lawyers that are disclasting instead.

14. My hat was rather **rilty**,
but Theresa's hat was even more rilty than mine.

15. You are **lisetous** only when you lose;
when you win, you are unlisetous instead.

16. My book seems very **sal**,
but Nancy's book is a good deal saller than mine.

17. The meadow next to the wheat field is full of **puck**;
I wonder if all the meadows are as puckful as that one.

18. Nick's truck is quite **fumper**,
but Carl's truck is much more fumper than Nick's.

19. That dinner was very **dran**;
I prefer food that is dranful instead.

20. Doctors may be extremely **rupple**,
but teachers are even ruppler than doctors.

21. Mike's lamp is **intesh**;
I think he needs one that is tesh instead.

22. Magazines are pretty **zelk**,
but newspapers are much more zelk than magazines.

23. Without a candle in it, that birthday cake resembles a **nart**;
it is a really nartable cake.

24. Rita's house is very **puttly**,
but Jim's house is even puttlier than Rita's.

25. There's a lot of **blin** in this sandwich;
I don't usually like sandwiches that are as blinny as this one.

Part II: Novel Absolute Experiment: Version B

1. Your father is **teyaling** his watch;
   I didn't know watches were teyalable these days.

2. My favorite TV show is very **dempy**,
   but your favorite is a good deal more dempy than mine.

3. The movie he directed had a lot of **harse** in it;
   I hope that all the movies he directed aren't as harseable as this one.

4. My uncle is kind of **sant**,
   but my father is a lot santer than my uncle.

5. Maggie's shoes look **unrelled** with that dress;
   on the other hand, her hat looks quite relled with it.

6. His computer is awfully **dillow**,
   but Jane's computer is even more dillow than his.

7. Linda's party had a lot of **sood**;
   I wonder if all of her parties are as soody as that one.

8. The rice is sort of **kittle**,
   but the beans are much kittler than the rice.

9. My trip was full of **junest**;
   you could say it was a very junesting trip.

10. My answer was quite **sturt**,
    but Bill's answer was even more sturt than mine.

11. The kitchen always resembles **kent** after dinner,
    but I never saw it this kentable before.

12. Cathy's car is kind of **felsome**,
    but Pete's car is much felsomer than hers.

13. The lawyer was **disclasted**;
    I prefer lawyers that are disclasting instead.

14. My hat was rather **rilty**,
but Theresa's hat was even riltier than mine.

15. You are **lisetous** only when you lose;
when you win, you are unlisetous instead.

16. My book seems very **sal**,
but Nancy's book is a good deal more sal than mine.

17. The meadow next to the wheat field is full of **puck**;
I wonder if all the meadows are as puckful as that one.

18. Nick's truck is quite **fumper**,
but Carl's truck is much fumperer than Nick's.

19. That dinner was very **dran**;
I prefer food that is dranful instead.

20. Doctors may be extremely **rupple**,
but teachers are even more rupple than doctors.

21. Mike's lamp is **intesh**;
I think he needs one that is tesh instead.

22. Magazines are pretty **zelk**,
but newspapers are much zelker than magazines.

23. Without a candle in it, that birthday cake resembles a **nart**;
it is a really nartable cake.

24. Rita's house is very **puttly**,
but Jim's house is even more puttly than Rita's.

25. There's a lot of **blin** in this sandwich;
I don't usually like sandwiches that are as blinny as this one.

Appendix F: Database Search Results

Note: Repetitions within an utterance were excluded and are underlined here; files are arranged chronologically, not numerically

Ross

2.6 - 3.0

20/52	You feel better?
20/184	It will be cleaner.
20/311	I'm gonna make you feel better.
20/314	Are you feeling better now?
20/370	You feel better?
20/378	Lot better?
20/614	You make it better.
20/615	You do it better.
23/199	I'm feeling better.
24/315	Because I'm feeling better.
24/388	Yeah # I'm a bigger boy.
24/390	You're the bigger boy.
25/51	It's going to be bigger and bigger.
25/392	I'm bigger already.
26/912	Now it's feeling better.
27/989	No # a bigger barn.
27/997	That's a smaller man.
28/511	Yeah # it's not better up.
29/442	I'm a bigger boy and I say cracker.
29/451	I'm bigger and I'm not little.
30/277	I want a bigger Hulk shirt # maybe we're gonna buy one.
30/350	Are you happy than Mark [=happier than or happy with]?
30/661	Is Marky feeling better?
30/662	Has he got aspirin in his mouth and is he feeling better?
31/107	He want a bigger one.
31/113	The bigger bear is upstairs where it's lost.
31/146	Make it a bigger bigger sandwich.
31/854	I'm a bigger one.
31/1323	See # the hulk is feeling better now.
28/143	I want to put my little girl here # my little girl # not my bigger.
28/1206	And this is the bigger watch.

3.0.1 - 4.0

32/848	Why is not bigger? [=Why is the band you cut off not bigger? Or Why did you make it so small?]
32/856	Mark is this years older and I'm this years old.
32/910	Okay # the apple will make me feel better.
32/915	No # I said # okay # the apple will make me feel better I think.
32/1005	My big drink aspirin make me feel better.
32/1039	When you're going to get better you can go to university # but I'm already better.
32/1076	My bottle will help me feel better.
32/1095	I'm this older [=I'm going to show you how old I am.]

32/1141	He went to his house where there colder and he got his coat on and his hat on and he went to his house where it is.
32/1196	I forgot my older baby blanket. [=I didn't remember to bring it, did you?]
33/24	But the bigger boy didn't drop bottle.
33/460	I want my older baby blanket.
33/462	I can't reach downstairs where my older baby blanket is.
33/595	No bigger Rachel.
33/834	This is a bigger pants for me and this is a bigger coat for me.
34/600	If we talk about it he never sees but if he sees it on tv it seems more interesting.
35/647	It's getting dark # and dark # and dark # and darker # and now it is dark.
35/735	It is better to eat your knife with jelly [= it is better to eat your jelly with a knife].
37/264	My hip harder.
38/1488	You're not better right now [=Brian had to stay sick].
38/1489	You're better right now.
39/204	She was sick and Snoopy came home to her and then he feeling better.
39/961	And the heart makes me feel better.
41/128	Then let's fight with those good guys who are stronger.
41/265	Well # why isn't it safer in the front? [=Why isn't it safe in the front?]
41/343	Mommy wanted to take it away # but I was stronger.
41/365	And the big ones are faster too.
41/1108	I'm stronger than Mark # and Marky's stronger than I am.
42/1082	That's bigger than the other bread?
43/1431	I want to be stronger than they are.
44/131	But the hulk is bigger than him.
44/132	But they're both bigger than we are.
44/134	Yeah # cause they're littler # yeah # and they're bigger.
44/135	They're bigger.
44/610	It's stronger for me to do it like that.
44/727	Then you're going to go to your own school # then Marky's going to go # I'll find a own school for Mark # no # Marky gets bigger at Pittsburgh and I get bigger at Pitttsburgh.
44/1245	Yeah # when I got bigger then I'm going to get to go to get to go to my new preschool.
44/1371	You're bossier than I am.
45/115	When we get bigger.
45/116	When we get bigger and drive a motorcycle.
45/260	Cause I'm older now.
45/486	xxx Maybe when I get bigger xxx.
45/512	Maybe Marky should do it when he gets bigger # okay # Dad?
46/1497	I was expecting someone larger.
46a/1873	I was expecting someone larger.

47/931 So the boy felt better and better and better.
47/1089 And the boy was feeling better and better and even better and he felt better.
47/1316 Nope # it's gooder.
47/1800 Clothes make me some # a lot warmer than your hair.

4.1 - 5.0

48/54 But Daddy # I have a book and it says the hulk is faster.
48/1134 She's meaner than Darth.
48/1147 Very powerful than Darth.
48/1156 And she's very powerful than Darth Vader.
48/1364 But no no matter how strong I am # the hulk is even stronger.
48/1564 Water bags are more funner than water in glasses and that's why my friend Jake threw this in the water.
48/1798 Bigger than you.
49/84 She was in the baby's group [//] I should call it the toddler's group # but I want to call it the baby's group [//] When she was younger.
49/375 No # he's bigger than him.
49/378 He is bigger than him.
49/382 He's bigger than he is.
49/797 Now I'm getting closer to <s> ["] s.
49/799 Oh # this time I made a better one.
49/805 Oh boy # I did a bigger one.
49/807 I made it bigger.
49/1129 Well # next time I'm going to have a bigger one.
49/1153 That's bigger.
50/58 No # that's harder.
50/394 Because it's better.
50/473 But when I get a little bit bigger I'll bump.
50/1612 Because boy kitties are easier to hold than girl kitties.
51/142 Because when you have a sister you can't sleep with her when you get get older.
51/494 Herbie's a robot that's smarter than Ben.
51/988 You want to see something better?
52/655 I'll decide when I get a little bit bigger.
52/1015 When we first went in it was cold and then it became warmer and warmer and then my back began to ache.
52/1176 Yeah # and we'll be easier to handle.
53/1284 If you knew how # # If you did not make me eat one anymore # it # it would make me [!] feel better.
53/1562 Even with Star Wars # I'm getting better and better.
54/353 Now I'll have to have a longer brushing # okay? [= *I'm going to brush my teeth really long before I do my floural+gard rinsing*]
54/442 A pleasant girl punched him # in his eye # and he became a much pleasanter pirot.
54/1550 Ya # and she was just trying to feel # to make me feel better # and Jim told me all about it.

5.1 - 6.0

59/229	Yeah # they are even worse than car accidents.
59/254	Yeah # it has a better song than macho+Duck [//] it has Duckstand.
59/369	It keeps getting higher and higher.
59/1462	Why is he uglier?
59/1499	He's fatter and he has an axe.
59/1623	You go to school to work # and when you get older you work more and and more.
59/1807	Because he's just littler # he doesn't understand.
60/175	So he went into the cave and saw them and they opened the treasure chest and it made his hand better and he said # <How did it do that> ["].
60/382	Well # you know I'm older [//] Marky's younger than me # right?
60/385	Because I'm bigger than him.
60/1588	No # he's bigger than me.
61/878	We'll have a longer life because we're still little kids.
61/1113	It's more specialer [*] than that # because you love me and you gave me me M+and+M-s and I got the Attack+Jack # and # um # and that I +/.
61/2093	They're much better than that other type of potato.
64/1448	xxx Return xxx and higher or forwards or xxx.
64/1809	(Be)cause I'm already sick # and I won't get anymore sicker # (be)cause I have the sniffles and I won't get any sicker.
64/1914	Dad # would you please get us that kind # (be)cause # I don't like <to be> [/] to be tined@c # and they're easier to get on in the morning when you have to go to school.
66/1909	<Because I'm older than him> [>].
66/1913	<Nuh+uh [=no] # (be)cause I'm older than him> [>]
66/1921	We're both smart # that counts # but the one that is smarter the most # that doesn't count.
66/1997	They get # bigger and bigger and bigger and bigger and bigger.
80/1736	Once we get xxx get rich # maybe # we xxx will be bigger xxx might # start a job.
65/22	By making me better.
55/466	No # the four+fives # and they were better.
55/472	I wish the littler one could stay up longer # and not us because that would make things fare # they don't make things fare when you're at kindergarten.
55/658	Not really [!] alike # because you can see this is more lighter then this one.
81/615	Lower part [!]?
81/683	More bigger more bigger more bigger?
81/967	<People would> [<] think that &w [//] <Bush xxx [>] xxx better.
81/2405	Yes # but it's harder being a second [!] one.
81/2734	<I guess I'm just smarter [!] than he is> [<]!
81/2737	I guess I'm just smarter than he is.
81/2742	Well I am [!] he [//] <I'm better at safety> [>] !
81/2745	<I'm better at safety> [>].
56/236	You got to find a nicer spaceship.

56/406	Dad # if you put Florida like that # then it might be easier like that.
67/1462	Who's scarier?
82/2258	It's better that outside!
82/2495	It would be easier.
68/749	Then it's harder <too control with> [//] to control your temper with a big [!!] kid # <than it is to control with a li(ttle)> [/] I mean it's easier with a big [!!] kid than a little [!!] kid.
68/908	I mean # a higher line of numbers.
68/910	A higher family.
68/1059	I got an idea # Marky's younger then me # right # ok # he goes to bed earlier than me.
69/1926	But it's very short # even shorter than Thudar
57/929	Gee # it really looks neater.
57/1783	You know I mean this big # <bigger> [//] this much bigger than Joey.
57/1791	<this much is> [!!] dad this much is how much I'm bigger than Joey.
57/2108	The more yummy they are +...

6.0.28 - 7.0

70/576	Because I'm [!] older than him.
70/582	<Two times older> [<].
70/592	Two times older.
70/867	This one was even grosser ohhh
70/868	Even grosser than Children+of+the+Lost+Ark they turned into +/.
70/1889	I get all the trophies because I'm lighter.
58/697	Cause I want him to have a better life than I do.
58/736	That works cause see # it's shorter
73/75	We(ll) it's something nicer.
73/410	<He's older> [<]
73/1752	Laurie Isabelle is littler than you and she can stand anything more scary than that.
73/1757	And [<] Jabba+the+Hut is a lot scarier.
73/1820	And the haunted house is scarier than Greystoke.
74/880	Yeah, but yours (i)s a lot better.
75/375	We're doing a lot better if I can jump over here [//] you in gymnastics.
75/1100	<I want a littler bowl> [<]
76/1013	<Which way is easier> [>]
76/1036	<Well it's> [<] easier because +/.
76/1066	Which way is faster?
76/2362	I know I could if it's littler.
77/821	Well maybe we could get something cheaper.
77/1115	It's bigger than this whole wide world.
77/1832	Like a very very very very more and more and more and more and more strange strange +...
77/1858	So I'll live a longer life.
78/1836	Daddy # how come mom's older than you and you know more?

7.1 - 8.5

84/204	Worse than Denver [!] almost
84/566	<Probably still more hungry than he is sleepy> [>]
84/828	+, its easier.
84/830	When I use my finger <to read> [>] # its even easier +/.
84/927	It just gets screwier [?]
84/1086	Russell himself # thought Linus would be better than him.
84/1661	<Foggy and foggier foggier. [<]
84/1702	+, you said like um # when we got a little older Maybe # you would start> [/] you would start um # taking us?
84/1706	<xxx now older> [>].
84/2086	The rest of it would [?] be a lot more busier.
84/2111	Kept # us # a lot more # busier.
84/2114	A lot busier.
84/2202	<So> [<] <it's close than> [//] it's closer to muppets.
87/137	Well I'm a lot more Mr Wonderfuler@n more than you.
89/305	He's make the cloth bigger.
89/2486	<Once you get up to higher numbers you forget the xxx numbers> [>]
93/341	Like saying # I'll # today it's near christmas <give me a higher> [//] give me some money man.
93/2099	But I think he's fatter than you are.
93/2578	# Neater [!]
91/1078	Firecrackers are more harmless.
91/1082	And I was more scared then.
91/1092	Yeah [=yes] but this is more harmful and +/.
92/1344	+, because # the Deceptions are more powerful.
94/347	So it'll be more fun, right?
94/351	And make sure it's more fun.
90/1947	So it's a lot easier.
90/2115	It's a lot easier.
90/2117	No dad it's just a lot easier.
90/2134	It's a lot easier.

Ross' Comparatives	2-3	3-4	4-5	5-6	6-7	7-8	Ross Total	Adult Total
better	2	2	4	8	3	1	44	120
cleaner	1	0	0	0	0	0	1	1
bigger	14	16	10	3	1	1	45	55
smaller	1	0	0	0	0	0	1	9
happy than	1	0	0	0	0	0	1	1*
older	0	6	1	4	5	2	18	22
colder	0	1	0	0	0	0	1	0
more interesting	0	1	0	0	0	0	1	1
darker	0	1	0	0	0	0	1	0
harder	0	1	1	2	0	0	4	15
stronger	0	6	1	0	0	0	7	4
safer	0	1	0	0	0	0	1	2
faster	0	1	1	0	1	0	3	10
littler	0	1	0	2	3	0	6	1
bossier	0	1	0	0	0	0	1	0
larger	0	2	0	0	0	0	2	3
gooder	0	1	0	0	0	0	1	3*
warmer	0	1	1	0	0	0	2	2
meaner	0	0	1	0	0	0	1	1
very powerful	0	0	2	0	0	0	2	2*
more funner	0	0	1	0	0	0	1	0
younger	0	0	1	2	0	0	3	2
closer	0	0	1	0	0	1	2	3
easier	0	0	2	4	2	6	14	35
smarter	0	0	1	3	0	0	4	11
longer	0	0	1	1	1	0	3	1
pleasanter	0	0	1	0	0	0	1	0
worse	0	0	0	1	0	1	2	10
higher	0	0	0	4	0	2	6	5
uglier	0	0	0	1	0	0	1	0
fatter	0	0	0	1	0	1	2	2
more specialer	0	0	0	1	0	0	1	0
anymore sicker	0	0	0	1	0	0	1	0
sicker	0	0	0	1	0	0	1	0
more lighter	0	0	0	1	0	0	1	0
lower	0	0	0	1	0	0	1	1
more bigger	0	0	0	1	0	0	1	0
nicer	0	0	0	1	1	0	2	11
scarier	0	0	0	1	2	0	3	1
shorter	0	0	0	1	1	0	2	0
neater	0	0	0	1	0	1	2	2
more yummy	0	0	0	1	0	0	1	0
grosser	0	0	0	0	2	0	2	0
lighter	0	0	0	0	1	0	1	3
more scary	0	0	0	0	1	0	1	0
cheaper	0	0	0	0	1	0	1	2
more strange	0	0	0	0	1	0	1	0
more hungry	0	0	0	0	0	1	1	1
screwier	0	0	0	0	0	1	1	0

Ross' Comparatives	2-3	3-4	4-5	5-6	6-7	7-8	Ross Total	Adult Total
more busier	0	0	0	0	0	2	2	4*
busier	0	0	0	0	0	1	1	2
close than	0	0	0	0	0	1	1	0
foggier	0	0	0	0	0	1	1	0
more MrWonderfuler	0	0	0	0	0	1	1	0
more harmless	0	0	0	0	0	1	1	1
more scared	0	0	0	0	0	1	1	0
more harmful	0	0	0	0	0	1	1	1
more powerful	0	0	0	0	0	1	1	0
more fun	0	0	0	0	0	2	2	12

Note: * indicates non-adultlike forms that were either repetitions of child utterances or were given by adults as examples of wrong forms

Mark

0.0 - 1.0

1.1 - 2.0

markross/663	I'm not bigger.
markross/664	I'm not bigger.
Markross/668	I'm not bigger.

2.1 - 3.0

3.1 - 4.0

61/964	Everything is bigger than me # so I'm Marky.
61/1550	When I was kneeling # I was almost bigger than you.
61/2043	OK [!] # then I'll be bigger.
61/2048	That's better.
63/172	Yeah I like to go to walk better than staying in the houses.
63/1826	No no no-s copy heavier # those heavier.
79/300	Of course he will because um if he doesn't he won't grow up a little more big.
79/637	I like the church one better.
64/720	Yeah # I know that # but I'm stronger than houses # I'm stronger than my friend Luke # my friend.
64/1085	Sure # so you're next to both of us # next to me and next to you # so your safer than us # so no ghosts # so we're protecting you.
64/1273	My toe's better it's just that I can't dance on it today # neither tomorrow # toe # yeah # no.
64/1529	No # no # it's getting prownish@c and prownish@c # it's getting better.
64/1716	Licking is better than wiping.
64/1717	Licking is better than cleaning and napkins with your face.
64/1726	A little bit more drier.
64/1728	And more drier and more cleaner.
64/1749	I want this more cut.
66/1171	Makes it easier.
66/2612	He's bigger than anybody in Florida.
66/2619	He's bigger.
66/2620	He's bigger than a mountain.
80/2424	The one who's bigger [//] it doesn't mean he can catch us right?
65/1709	Yeah # bigger than everyone.
65/1719	They're bigger than everyone in my class.
65/1724	He got bigger than everyone in his class.
65/1727	He got bigger than everyone in the class.
65/2383	He's more hungry.
81/614	That's the lower [!] part of the mountain.
81/2608	I'll be a better boy.
56/58	Has a lot more fun than +...
67/531	Both of them are prettier.
67/701	Both of these tongues are better.
67/769	That was luckier.

67/1527	The second one was better tasting # too.
67/1530	The last one was sweeter tasting# and there isn't a last one yet.
67/1570	Infinity food will get fatter.
67/1681	I [!] wanted to see which one was luckier to me.
82/1947	That would be better [!] we would <get to play with our toys> [>]!
69/433	Oops no let's stay in here by the colder.
69/1338	He's stronger.
69/1838	We were better than the last one.
69/1841	They were better than the third one.
83in/394	You [/] you know [!] which [//] you know what is more important in your body?
57/187	Because it's a bigger one.
57/1795	<And> [/] and I'm this bigger to Joey.
4.1 - 5.0	
70/1383	Because it hafta be prettier?
70/1385	I can't believe how much prettier it hafta be.
70/1566	Well # that's a bigger important thing.
58/1237	I hate that # it's more fun if I have a blanket.
71/1053	I'm getting most better # OK?
71/1069	I'm getting a lot I'm getting a lot better.
72b/499	(Be)cause I think it's better taking a walk.
72c/165	+, some more big.
72c/449	Because buildings are bigger than houses.
72e/61	If he didn't # he can't crack it down and if you don't <and he> [//] if [//] <and if you> [/] and if you don't like to do harder job you don't hard it down.
72g/564	And Tarzan could go on it because he's strong and that's stronger than him.
73d/396	Is [/] is # um # stronger than the Pretty Pony.
73d/404	The shelves # big big shelves are stronger that the Pretty Pony so they won't break when she's getting up there to get a toy.
73e/414	<You know who I like> [<] better?
73e/420	You know <who I> [<] like better than um um # dumb [/] dumb [//] those dumb +/.
73e/442	Know who I like better than those dumb # hated mud people?
73e/446	I like better you and Ross and Mom and myself!
74a1/49	My [/] my Ewok village <should be bigger> [/] should be bigger if it was going to be a Ewok village.
74a1/52	It should be bigger if it were going to be a Ewok village.
74a1/255	<He even draws> [/] he even draws bigger oceans.
74a1/257	He even can draw a bigger ocean.
74a1/299	Well my head is hotter.
74a1/425	But I'm way bigger than him.
74a1/445	Ross is way bigger in him.
75/1235	His brain is bigger.

76/47	It's easier down here to brush.
76/2181	Not older.
77/2109	I want the gooder one please.
77/2115	I want um I want the better one please.
78/1293	Paper [/] paper going out of my mouth would be better.
78/1296	Little pieces of paper flying out of my mouth would be better.
78/1765	Is more burning in there.
5.1 - 6.0	
87/115	I'm littler.
87/121	(Be)cause I'm littler.
87/676	<Like when> [<] it's a little more [!] hotter it's <h(ot)> [>] +/.
87/687	And it keeps on getting hotter and hotter xxx +/.
87/691	Keeps on getting hotter and hotter until it stops getting hotter.
87/2796	It'll get redder and redder and that xxx.
89/317	You'd have to make it even bigger.
89/857	<It's even> [//] and water's even better than +/.
89/1048	Bigger weapons than most of them.
89/1159	Well that was even better than the big bump # that Tom does Daddy.
89/1710	(Be)cause It's stronger than the scab down there.
90/36	But it's more fun there.
90/319	I'm trying to make it better.
90/683	Well you're doing better.
90/2441	Yeah because # I think school is better than being a bummer.
93/1427	They would have to be bigger if would # wear them.
93/1680	And I was the one who were closer to it and he said <hey> ["] !
93/2393	Who said # easier?
93/2397	Who said they easier?
93/2576	(Be)cause I think it should # <look> [>] nicer.
93/2581	Neater I mean.
93/2642	# A little bit prettier like +/.
93/2960	Um # I [/] need a better fighter than just the Adam [=He+Man] to fight Too+Bad.
93/3159	This one # is prettier.
91/14	<<it's a little bit &t> [//] <this is> [<] > [/] <this is > [//] this guy makes <even more um> [/] even more squishier@c.
91/20	And the more guys we have the more squishy it's gonna get.
91/210	Oh well I might as well get in there (be)cause um some [/] some [//] some+time is better than none+time.
91/257	Might be a little bit larger about this big.
91/468	You mean the puppy is heavier than [/] stronger.

91/478 Heavier than them.
91/1096 But it's not more harmful.
92/879 That would be better.

Mark's Comparatives	0-1	1-2	2-3	3-4	4-5	5-6	Mark Total	Adult Total
bigger	0	3	0	13	10	3	29	55
better	0	0	0	12	7	8	28	120
heavier	0	0	0	1	0	2	3	0
more big	0	0	0	1	1	0	2	0
stronger	0	0	0	3	3	2	8	4
safer	0	0	0	1	0	0	1	2
more drier	0	0	0	2	0	0	2	0
more cleaner	0	0	0	1	0	0	1	0
more cut	0	0	0	1	0	0	1	0
easier	0	0	0	1	1	2	4	35
more hungry	0	0	0	1	0	0	1	1
lower	0	0	0	1	0	0	1	1
more fun	0	0	0	1	1	1	3	12
prettier	0	0	0	1	2	2	5	4
luckier	0	0	0	2	0	0	2	0
sweeter	0	0	0	1	0	0	1	3
fatter	0	0	0	1	0	0	1	2
colder	0	0	0	1	0	0	1	0
more important	0	0	0	1	0	0	1	0
most better	0	0	0	0	1	0	1	0
harder	0	0	0	0	1	0	1	15
hotter	0	0	0	0	1	2	3	2
older	0	0	0	0	1	0	1	22
gooder	0	0	0	0	1	0	1	3*
more burning	0	0	0	0	1	0	1	0
littler	0	0	0	0	0	2	2	1
more hotter	0	0	0	0	0	1	1	0
redder	0	0	0	0	0	1	1	1
closer	0	0	0	0	0	1	1	3
nicer	0	0	0	0	0	1	1	11
neater	0	0	0	0	0	1	1	2
more squishier	0	0	0	0	0	1	1	0
more squishy	0	0	0	0	0	1	1	0
larger	0	0	0	0	0	1	1	3
more harmful	0	0	0	0	0	1	1	1

Note: * indicates non-adultlike forms that were either repetitions of child utterances or were given by adults as examples of wrong forms

Adults' Comparatives: List includes all comparatives used by all speakers, but numbers represent adult utterances only. "*" indicates non-adultlike forms that were either repetitions of child utterances or were given by adults as examples of wrong forms.

Monosyllabic Stems

bigger	55
browner	2
calmer	3
cheaper	2
cleaner	1
clearer	1
closer	3
colder	0
cooler	2
cuter	2
darker	0
faster	10
fatter	2
grosser	0
harder	15
higher	5
hotter	2
larger	3
lighter	3
longer	1
lower	1
meaner	1
neater	2
newer	1
nicer	11
older	22
redder	1
sadder	1
safer	2
shorter	0
sicker	0
smaller	9
smarter	11
softer	1
stronger	4
sweeter	3
taller	4
tighter	1
tougher	1
warmer	2
younger	2
more big	0
more fun	12
more hot	1
more real	5
more strange	0

more bigger	0
more cleaner	0
more drier	0
more funner	0
more hotter	0
more lighter	0
anymore sicker	0

better	120
more better	1*
most better	0
gooder	3*
worse	10
close than	0

Y Disyllabic Stems

bossier	0
busier	2
easier	35
foggier	0
happier	3
heavier	0
luckier	0
prettier	4
scarier	1
scewier	0
squishier	2
uglier	0

more chancy	1
more hungry	1
more noisy	0
more scary	0
more squishy	0
more yummy	0

more busier	4*
more easier	2*
happy than	1*

LE Disyllabic Stems

littler	1

Miscellaneous Disyllabics

more active	1
more careful	3
more harmful	1
more harmless	2
pleasanter	0
more specialer	0

Multisyllabics

more important	0
more interesting	1
more Mr. Wonderfuler	0
very powerful	2*
more serious	1

Derived Adjectives

more burning	0
more cut	0
more scared	0

Appendix G: Real Relative Experiment Questionnaire/Child

Pretest:

(Using pictures)

A. Can you show me Snow White?
B. Grumpy?
C. The witch?

D. In this picture, who is taller? Snow White or Grumpy?
E. In this picture, who do you think is more beautiful? The witch or Snow White?
F. Let's look at this picture. Whose nose is bigger? Grumpy's or Snow White's?
G. Look at this apple. Do you think apples taste good? What do you think is more
delicious? Mud or an apple?

Sometimes when we talk, we say things different ways. Usually, one way sounds better than the other.

If I were going to talk about this picture of the queen, would it sound better to say...

1. a. The queen is sitting by himself Or...
b. The queen is sitting by herself?

In this picture, would it sound better to say...

2. a. Snow White is washing the floor Or...
b. Snow White am washing the floor?

(Without pictures)

If I were talking about the witch, would it sound better to say...

3. a. The witch was disnice Or...
b. The witch was not nice?

Disnice or not nice?

Would it sound better to say...

4. a. Snow White ate the poisened apple Or...
b. Snow White eated the poisened apple?

Ate or eated?

Block 1

1.	a.	Bob's dog is friendlier than he used to be.
	b.	Bob's dog is more friendly than he used to be.
2.	a.	The store was crowded last Saturday.
	b.	The store was crowdy last Saturday.
3.	a.	The teacher's answer was more right than Mike's.
	b.	The teacher's answer was righter than Mike's.
4.	a.	This whipped cream is insweet.
	b.	This whipped cream is not sweet.
5.	a.	My bed is more narrow than yours.
	b.	My bed is narrower than yours.
6.	a.	My hands are dirtous from digging in the garden.
	b.	My hands are dirtful from digging in the garden.
7.	a.	My backpack is heavier than yours.
	b.	My backpack is more heavy than yours.
8.	a.	This ladder is shorter than that one.
	b.	This ladder is more short than that one.
9.	a.	The princess was unkind to the queen.
	b.	The princess was not kind to the queen.
10.	a.	They were foolic for not paying attention.
	b.	They were foolsome for not paying attention.
11.	a.	My game is more simple than yours.
	b.	My game is simpler than yours.
12.	a.	She is impatient with children.
	b.	She is not patient with children.
13.	a.	That clown looks funnish in his big shoes.
	b.	That clown looks funny in his big shoes.
14.	a.	This flower is deader than that one.
	b.	This flower is more dead than that one.
15.	a.	The soda is more cold than the lemonade.
	b.	The soda is colder than the lemonade.
16.	a.	These cookies are crunchy.
	b.	These cookies are crunchish.

Block 2

17. a. My aunt is more old than yours.
    b. My aunt is older than yours.

18. a. She is unhelpful to her sister.
    b. She is not helpful to her sister.

19. a. This medicine is bitterer than the other.
    b. This medicine is more bitter than the other.

20. a. That movie was very scarous.
    b. That movie was very scary.

21. a. Her brother is more handsome than mine.
    b. Her brother is handsomer than mine.

22. a. Superman is unafraid of Batman.
    b. Superman is not afraid of Batman.

23. a. Her hair is longer than her sister's.
    b. Her hair is more long than her sister's.

24. a. The dog is happier than the cat.
    b. The dog is more happy than the cat.

25. a. He won the game because he was luckent.
    b. He won the game because he was luckful.

26. a. That dog is very hairy.
    b. That dog is very hairish.

27. a. His friend was disnice to me.
    b. His friend was not nice to me.

28. a. Your room is more little than mine.
    b. Your room is littler than mine.

29. a. She got very skinny by dieting.
    b. She got very skinish by dieting.

30. a. The pie is wholer than the cake.
    b. The pie is more whole than the cake.

31. a. Ann's mistake was more wrong than mine.
    b. Ann's mistake was wronger than mine.

32. a. The furniture is very dustlike.
    b. The furniture is very dustful.

Appendix H: Filler Judgments: Real Relative Experiments

Filler results for 4-and 7-year-olds were compared to those of adults in order to determine if the children were capable of handling the demands of the Relative Judgment task or if they resorted to some default strategy such as consistently choosing either the first or second choice given. Recall that filler pairs were of three types designed to mimic the kinds of choices it seemed would be made for the test pairs. One type represents the grammatical vs. ungrammatical choice as exemplified by attested vs. unattested forms. The subset of these that children also judged is presented below. Next to each are the percentage of 4-year-olds, 7-year-olds and adults who chose the attested form. The attested/unattested ordering below reflects the order of presentation. Since half the time the attested form preceded and half the time it followed the unattested form, a preference for first or second choice is controlled for.

Fillers: Attested vs. Unattested Forms

	% Choice Attested		
Unattested/Attested	**4-Year-Olds**	**7-Year-Olds**	**Adults**
*insweet/not sweet	41.6	100.0	100.0
*funnish/funny	91.7	100.0	100.0
*scarous/scary	88.9	100.0	98.4
*disnice/not nice	75.0	100.0	100.0
Attested/Unattested			
crowded/*crowdy	72.2	94.4	100.0
crunchy/*crunchish	72.2	100.0	100.0
hairy/*hairish	52.8	100.0	100.0
skinny/*skinnish	61.1	100.0	100.0
Means:	69.4	99.3	99.8

While it is apparent that the adults and 7-year-olds are clearly using their knowledge of attested forms to make their decisions, the 4-year-olds seem somewhat less able to do this; three of the eight judgments above do not differ significantly from chance. However, those that do show the same direction of preferences as the 7-year-olds and adults, just not as extreme.

Two other types of filler pairs were included. One group pitted ungrammatical forms against each other forcing subjects to choose, in a sense, the one they disliked less. These took the form of two unattested adjectives. The subset of the adult fillers of this type that the children also heard is displayed below. The other group was composed of pairs where both alternatives were viable. These took the form of analytic and synthetic negative forms and the subset of these that the children heard are also shown below.

Unattested vs. Unattested Forms

	% Choice Second Position		
Opaque/Transparent	**4-Year-Olds**	**7-Year-Olds**	**Adults**
*dirtous/*dirtful	80.6	94.4	90.3
*foolic/*foolsome	63.9	80.6	96.8
*luckent/*luckful	80.6	100.0	98.4
*dustlike/*dustful	86.1	97.2	93.5
Means:	77.8	93.1	94.8

Analytic vs. Synthetic Forms

	% Second Choice Position		
Synthetic/Analytic	**4-Year-Olds**	**7-Year-Olds**	**Adults**
unkind/not kind	63.9	83.3	64.5
impatient/not patient	50.0	72.2	33.9
unhelpful/not helpful	61.1	88.9	90.3
unafraid/not afraid	94.4	100.0	100.0
Means:	67.4	86.1	72.2

Unfortunately, a flaw in the materials assembly does not permit judgments of these two groups of fillers to be considered in this discussion. In the unattested vs. unattested forms, the second form was always the more semantically transparent and, given the contexts in which the adjectives appeared, more plausible form. In the analytic vs. synthetic forms, the analytic form always appeared in second position, conflating order of presentation with free vs. bound forms.

To sum up, no second choice preference seemed to be in operation for children or adults when considering grammatical vs. ungrammatical fillers. Although, prima facie, it seemed to be in operation when the other two groups of fillers were examined, it is plausible to assume that other factors noted above instead were in effect. Since it is safe to assume that the adults can handle the task and children, for the most part, behaved like the adults, there is no reason to believe that children resorted to some default position strategy. Therefore, it is safe to conclude that the children's data are valid.

Appendix I: Filler Judgments: Novel Relative Experiment

Nonce Filler Judgments

	% Choice Second Position		
	4-Year-Olds	7-Year-Olds	Adults
inteyal/disteyal	72.2	69.4	41.9
harseable/harsey	75.0	33.3	19.4
unrelled/disrelled	69.4	72.2	24.2
sooding/soody	80.6	61.1	38.7
junestful/junestlike	80.6	33.3	6.5
kentic/kenful	97.2	61.1	24.2
disclasted/inclasted	91.7	58.3	33.9
lisetous/lisetful	86.1	63.9	38.7
puckable/puckful	80.6	77.8	50.0
dranful/dranable	83.3	36.1	14.5
inteshful/unteshful	77.8	66.7	53.2
nartish/nartable	75.0	41.7	17.7
Means:	80.8	56.2	30.2

Recall that by Chi-Square analyses, child comparative choice percentages must be 33.3% or less or 66.7% or more to differ significantly from chance, $p<.05$; adults' must be 37.1% or less or 62.9%or more. All of the 4-year-olds' choices do differ significantly from chance and a second choice bias in effect. On the other hand, half of the 7-year-olds' choices and five of the adults' choices are at the level of chance. Adults, if anything, show a slight bias toward first position. Results for the filler novel forms reveal patterns similar to those of the test novel forms.

BIBLIOGRAPHY

Anderson, S.R. (1992). *A-morphous morphology*. Cambridge: Cambridge University Press.

Aronoff, M. (1976). *Word formation in generative grammar*. Cambridge: MIT Press.

Ballinger, P. (1991). Curiouser and curiouser: Usage of comparative `-er' in American and British English. *California Linguistic Notes, XXIII*, Number 1, 1-3.

Baker, C.L. (1979). Syntactic theory and the projection problem. *Linguistic Inquiry, 10*, Number 4, 533-581.

Barber, C. (1964). *Linguistic change in present-day English*. University, Alabama: University of Alabama Press.

Bartlett, E.J. (1976). Sizing things up: The acquisition of the meanings of dimensional adjectives. *Journal of Child Language, 3*, 205-219.

Bauer, B.M. (1995). *The emergence and development of SVO patterning in Latin and French*. New York: Oxford University Press.

Berko, J. (1958). The child's learning of English morphology. *Word, 14*, 150-177.

Berndt, R., & Caramazza, A. (1978). The development of vague modifiers in the language of pre-school children. *Journal of Child Language, 5*, 279-294.

Bichakjian, B.H. (1987). The evolution of word order: A paedomorphic explanation. In A.G Ramat, O. Carruba, & G. Bernini (Eds.), *Papers from the 7th International Conference on Historical Linguistics*. Amsterdam: Benjamins.

Bijeljac-Babic, Bertoncini, J., & Mehler, J. (1993). How do 4-day-old infants categorize multisyllabic utterances? *Developmental Psychology, 29*, 711-721.

Blackwell, A.A. (1998). *Adjectives in acquisition: On the semantic and syntactic development of English adjectives*. Unpublished doctoral dissertation, Boston University Graduate School.

Bloom, L. (1970). *Language development: Form and function in emerging grammars*. Cambridge: MIT Press.

Bloom, L. (1975). *One word at a time: The use of single word utterances before syntax*. The Hague: Mouton.

Bloom, K., Lightbown, P., and Hood, P. (1975). Structure and variation in child language. *Monographs of the Society for Research in Child Development, 40* (2, Serial No. 160).

Bresnan, J. (1973). Syntax of the comparative construction in English. *Linguistic Inquiry, 4*(3), 275-344.

Bowerman, M. (1978). Systematizing semantic knowledge: Changes over time in the child's organization of word meaning. *Child Development, 49*, 977-987.

Brown, R. (1973). *A first language: The early stages.* Cambridge: Harvard University Press.

Bullock, M., & Gelman, R. (1977). Numerical reasoning in young children: The ordering principle. *Child Development, 48,* 427-434.

Bybee, J.L. (1985). *Morphology.* Amsterdam: John Benjamins Publishing Company.

Carey, S. (1978). The child as word learner. In M. Halle, J. Bresnan, & G. Miller (Eds.), *Linguistic theory and psychological reality* (pp. 264-293).Cambridge: MIT Press.

Chomsky, N. (1991). Some notes on economy of derivation and representation. In R. Freidin (Ed.), *Principles and parameters in comparative grammar* (pp. 417-454). Cambridge: MIT Press.

Chomsky, N. (1993). A minimalist program for linguistic theory. In K. Hale & S.J. Keyser (Eds.), *The view from Building 20* (pp. 1-52). Cambridge: MIT Press.

Chomsky, N. (1995). *The minimalist program.* Cambridge: MIT Press.

Clark, E.V. (1972). On the child's acquisition of antonym pairs in two semantic fields. *Journal of Verbal Learning and Verbal Behavior, II,* 750-758.

Clark, H. 1970. The primitive nature of children's relational concepts. In J.R. Hayes, (Ed.), *Cognition and the development of language* (pp. 269-278). New York: Wiley.

Coots, J. (1975). *Polarity and complexity in spatial adjective acquisition.* Paper presented to the Society for Research in Child Development.

Corver, N. 1997. *Much*-support as a last resort. *Linguistic Inquiry, 28,* Number 1, 119-164.

Derwing, B.L. (1976). Morpheme recognition and the learning of rules for derivational morphology. *The Canadian Journal of Linguistics, 21,* 38-66.

Dever, R.B., & Gardner, W.I. (1970). Performance of normal and retarded boys on Berko's test of morphology. *Language and Speech, 13,* 162-181.

Di Sciullo, A.M., & Williams, E. (1987). *On the definition of word.* Cambridge: MIT Press.

Donaldson, M., & Wales, R. (1970). On the acquisition of some relational terms. In J.R. Hayes, (Ed.), *Cognition and the development of language* (pp. 235-267). New York: Wiley.

Ehri, L. (1976). Comprehension and production of adjectives and seriation. *Journal of Child Language, 3,* 369-384.

Eilers, R., Oller, D.K., & Ellington, J. (1974). The acquisition of word-meaning for dimensional adjectives: The long and short of it. *Journal of Child Language, 1,* 195-204.

Emonds, J. (1976). *A transformational approach to English syntax.* New York: Academic Press.

Fodor, J.D. (1985). *The procedural solution to the projection problem*. Paper presented at the Boston University Conference on Language Development, Boston, MA.

Forster, K.I., & Chambers, S.M. (1973). Lexical access and naming time. *Journal of Verbal Learning and Verbal Behavior, 12,* 627-635.

Francis, W.N., & Kucera, H. (1982). *Frequency analysis of English usage: Lexicon and grammar.* Boston: Houghton Miflin.

Frank, M. (1972). *Modern English: A practical reference guide.* Englewood Cliffs: Prentice-Hall, Inc.

Gathercole, V.V. (1979). *Birdies like birdseed the bester than buns: A study of relational comparatives and their acquisition.* Unpublished doctoral dissertation, University of Kansas.

Gathercole, V.V. (1983). Haphazard examples, prototype theory, and the acquisition of comparatives. *First Language, 4,* 169-196.

Gathercole, V.V. (1985). More and more and more about more. *Journal of Experimental Child Psychology, 40,* 73-104.

Gitterman, D., & Johnston, J.R. (1983). Talking about comparisons: A study of young children's comparative adjective usage. *Journal of Child Language, 10,* 605-621.

Gordon, P. (1985). Level-ordering in lexical development. *Cognition, 21,* 73-93.

Greenberg, J. (1954). A quantitative approach to the morphological typology of language. *International Journal of American Linguistics, 26,* 178-194.

Greenberg, J. (1966). Some universals of language with particular reference to the order of meaningful elements. In J. Greenberg (Ed.), *Universals of language* (2nd ed., pp. 73-113). Cambridge: MIT Press.

Grimshaw, J. 1994. Lexical reconciliation. In L. Gleitman & B. Landau (Eds.), *The acquisition of the lexicon* (pp. 411-430). Cambridge: MIT Press.

Gropen, J., Pinker, S., Hollander, M., Goldberg, R., & Wilson, R. (1989). The learnability and acquisition of the dative alternation in English. *Language, 65,* Number 2, pp. 203-257.

Hammouda, S. (1988). Learnability issues in the acquisition of the dative alternation in English. Unpublished doctoral dissertation, University of Connecticut.

Jakobson R., and Halle, M. (1956). *Fundamentals of language, Vol.1: Janua Linguarum.* The Hague: Mouton.

Johnston, J.R. (1985). Cognitive prerequisites: The evidence from children learning English. In D.I. Slobin (Ed.), *The crosslinguistic study of language acquisition: Volume 2* (pp. 961-1004). Hillsdale: Lawrence Erlbaum Associates.

Kiparsky, P. (1982) From cyclic phonology to lexical phonology. In H. van der Hulst & N. Smith (Eds.), *The structure of phonological representations, Parts I and II.* Dordrecht: Foris.

Knüpfer, H. (1921). Die Anfange der periphrstischen Komparation im Englischen. *Englishe Studien, 55,* 321-389.

Kroch, A. (1989). Language learning and language change. *Behavioral and Brain Sciences, 12,* 348-349.

Kytö, M. (1996). "The best and most excellentest way": The rivalling forms of adjective comparison in Late Middle and Early Modern English. In J. Svartvik (Ed.), *Words.* Proceedings of an international symposium, Lund, Konferenser, *36,* 123-144.

Lakoff, R. (1972). Another look at drift. In R.P. Stockwell, & R.K.S. Macaulay (Eds.), *Linguistic change and generative theory* (pp. 172-198). Bloomington: Indiana University Press.

Lamberts, J. (1971). *A short introduction to English usage.* New York: McGraw-Hill.

Layton, T., Stick, S. (1979). Comprehension and production of comparatives and superlatives. *Journal of Child Language, 6,* 511-527.

Lindner, G. (1898). *Aus dem naturgarten ser Kindersprache.* Leipzig: T. Grieben.

Lindquist, H. (1998). The comparison of English disyllabic adjectives in *-y* and *-ly* in present-day British and American English. In H. Lindquist, S. Klintborg, M. Levin, & M. Estling, (Eds.), *The major varieties of English.* Papers from MAVEN 97. Växjö: Acta Wexionensia.

Lovell, K. and Bradbury, B. (1967). The learning of English morphology in educationally subnormal special school children. *American Journal of Mental Deficiency, 71,* 609-615.

MacWhinney, B. (1995). The CHILDES project: Computational tools for analyzing talk. Hillsdale: Lawrence Erlbaum Associates.

Maratsos, M. (in press). More overregularizations after all: New data and discussion on Marcus, Pinker, Ullman, Hollander, Rosen and Xu. *Journal of Child Language.*

Marchand, H. (1969). *The categories and types of present-day English word-formation* (2nd edition). Munchen: Beck.

Marcus, G. (1995). Children's overregularization of English plurals: A quantitative analysis. *Journal of Child Language, 22,* 447-459.

Marcus, G., Pinker, S., Ullman, M. Hollander, M., Rosen, T., & Xu, F. (1992). Overregularization in language acquisition. *Monographs of the Society for Research in Child Development,* Serial No. 228, Volume 57.

Matthews, P.H. (1974). *Morphology.* Cambridge: Cambridge University Press.

McDaniel, D., & Maxfield, T.L. (1992). Principle B and contrastive stress. *Language Acquisition: A Journal of Developmental Linguistics, 2,* 337-358.

Mills, A. E. (1985). The acquisition of German. In D. Slobin (Ed.), *The crosslinguistic study of language acquisition: Volume 1.* Hillside: Lawrence Erlbaum Assoiciates.

Mossé, F. (1952). *A handbook of Middle English*. Baltimore: The Johns Hopkins Press.

Nelson, K. and Benedict, H. (1974). The comprehension of relative, absolute and contrastive adjectives by young children. *Journal of Psycholinguistic Research, 3,* 333-342.

Pinker, S. (1984). *Language learnability and language development*. Cambridge: Harvard University Press.

Pinker, S. (1989). *Learnability and cognition: The acquisition of argument structure*. Cambridge: MIT Press.

Pinker, S., Lebeaux, D., & Frost, L. (1987). Productivity and constraints in the acquisition of the passive. *Cognition, 26,* 195-267.

Pound, L. (1901). The comparison of adjectives in English in the XV and XVI century. *Anflistische Forschungen,* 7. Heidelberg: Carl Winter.

Pregel, D. (1970). *Zum Sprachstil des Grundschulkindes*. Dusseldorf: Schwann.

Preyer, W. (1882). Die Seele des Kindes. Leipzig: T. Grieben.

Radford, A. (1997). *Syntactic theory and the structure of English: A minimalist approach*. Cambridgge: Cambridge University Press.

Rubenstein, H., Garfield, L., & Milliken, J.A. (1970). Homographic entries in the internal lexicon. *Journal of Verbal Learning and Verbal Behavior, 9,* 487-494.

Selby, S. 1972. The development of morphological rules in children. *British Journal of Educational Psychology 42,* 293-299.

Siegel, D. (1978). The adjacency constraint and the theory of morphology. In M.J. Stein (Ed.), *Proceedings of the Eighth Annual Meeting of the North Eastern Linguistic Society,* 189-197.

Slobin, D.I. (1977). Language change in childhood and in history. In J.T. Macnamara (Ed.), *Language learning and thought*. New York: Academic Press.

Stassen, L. (1985). *Comparison and universal grammar*. Oxford: Basil Blackwell.

Stern, C., & Stern, W. (1928). *Die Kindersprache: Eine psychologische und sprachtheoretische Untersuchung* (4th ed.). Darmstadt: Wissenschaftliche Buchgesellschaft.

Townshend, D. (1976). Do children interpret 'marked' comparative adjectives as their opposites? *Journal of Child Language, 3,* 385-396.

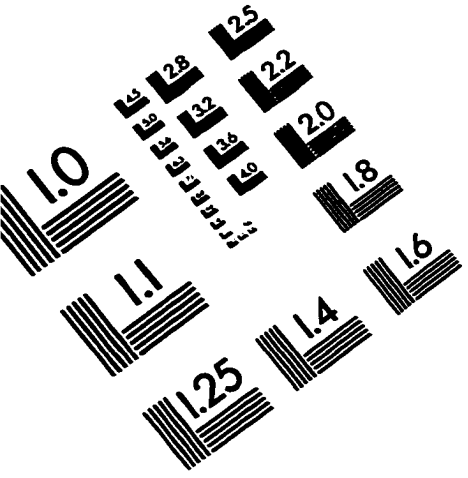
Wexler, K., & Culicover, P. (1980). *Formal principles of language acquisition*. Cambridge: MIT Press.

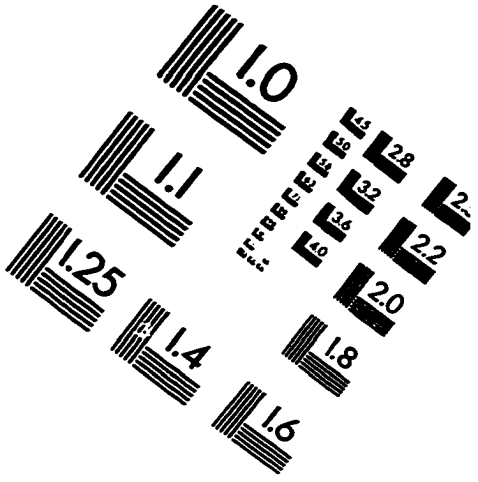
Williams, E. (1981). On the nature of 'lexically related' and 'head of a word'. *Linguistic Inquiry, 12,* 245-74.

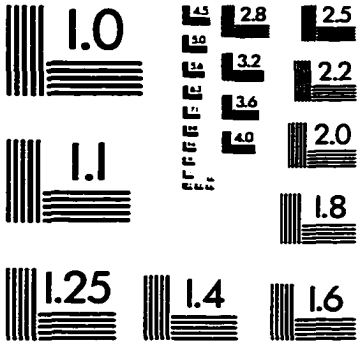
Wode, H. 1978. Free vs. bound forms in three types of language acquisition. *The Interlanguage Studies Bulletin - Utrecht, 3* (1), 6-22.

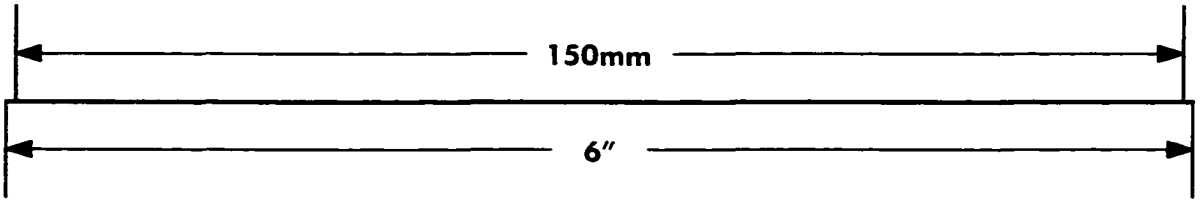
Wyld, H.C. (1914). *A short history of English*. London: John Murray.

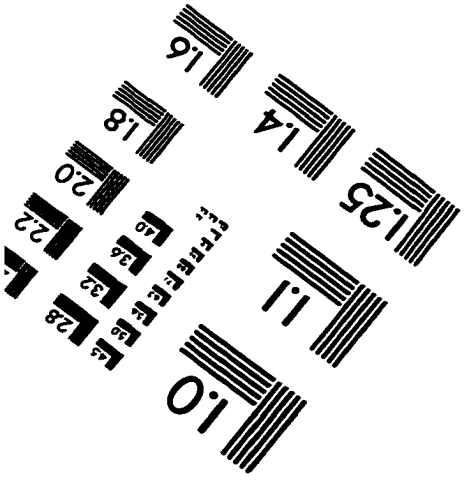
IMAGE EVALUATION
TEST TARGET (QA-3)

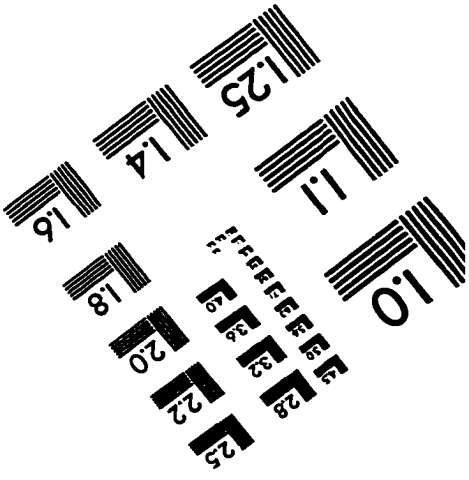












APPLIED IMAGE . Inc
1653 East Main Street
Rochester, NY 14609 USA
Phone: 716/482-0300
Fax: 716/288-5989