Quicker, more quickly, *quicklier*

Arnold M. Zwicky

1. SMALL ISSUES IN ENGLISH, LARGE ISSUES IN THE THEORY OF GRAMMAR

Even very small details in the morphological analysis of one language can have substantial consequences for morphological theory and for assumptions about the place of morphology in grammar. Consider the fact that to English ADVs derived from ADJs by suffixation of -ly, like *QUICKLY*, there correspond no comparative or superlative inflected forms, as in (1a); instead there are inflectional forms lacking the -ly, as in (1b), plus alternative 'periphrastic' or 'analytic' (syntactic) constructions, as in (1c).

(1)  
   a. quickly, *quicklier, *quickliest  
   b. I left quicker than Kim, Robin left quickest of all  
   c. more quickly, most quickly

Two very different accounts of *quicklier* are found in the literature on morphology in generative grammar. For Aronoff (1976:92-4), a comparative rule inserts -er under phonological and lexical conditions, and there is a rule truncating the morpheme -ly in ADVs, as in (2). For Kiparsky (1982:23-4), the comparative rule inserts -er only after ADJ stems, as in (3).

(2) A: Delete +ly / [ C₀VC₀ ___ +er ]ADV

(3) K: Insert +er / ADJ ___ ]ADV[+COMP]

There are at least three separable sets of issues here: those having to do with the putative phonological conditioning on inflectional degree forms; those arising from the (quite robust) fact of mutual incompatibility between adverbial -ly and the degree suffixes -er and -est; and those concerned with the grammaticality of the periphrastic degree expressions with MORE and MOST. Speaking crudely, these are phonological, morphological, and syntactic issues.

Author's address: Dept. of Linguistics, Ohio State University, 1841 Millikin Rd, Colombus, Ohio, U.S.A.
respectively. My initial focus, in Sections 2 through 6, is on the morphological issues. In Section 7 I turn to the syntax of the matter and in section 8 to phonology.

I will argue that neither Aronoff's treatment nor Kiparsky's is satisfactory on theoretical grounds. Each entails a step that the prudent theoretician should be reluctant to make. I will propose instead an analysis that avoids such missteps. Its central feature is the positing of two rules deriving ADVs from ADJs in English: the usual one involving -ly and one involving no alteration in source ADJs. Important subsidiary assumptions appeal to a paradigm class distinction for English ADJs (a purely morphological classification distinct from the subcategorization of ADJs with respect to the syntactic rules they are licensed to occur in) and to lexical redundancy rules relating phonological properties of a lexeme to its paradigm class.

The point of the exercise is not so much to defend this claim about English morphology as to expose the theoretical propositions that turn out to bear on the choice of one analysis over another. My aim is to make explicit such hypotheses, assumptions, leading ideas, or (as I shall call them here) positions - there will be eighteen of them - and to show how they are related to the analytic issues in English. Not one of these positions is uncontroversial. For many of them, there is an extensive literature, although this is not necessarily couched in the terms I use here, which are designed to expose the logic of the positions, not to survey or explicate the existing literature.

I do not pretend to settle fundamental theoretical issues here. Indeed, the questions at issue are not ones that can be 'settled' in easy or straightforward ways, involving as they do both metatheoretical preferences (for instance, a preference for static-condition versions of generalizations wherever these are attainable without loss of generalization) and assumptions about components of grammar other than morphology (syntax, obviously, but also phonology as it relates to morphology, and semantics as it relates to both syntax and morphology). It is startling, in fact, that when it is asked what the warrant is for some part of analysis in a particular language, one is almost immediately driven back to considering virtually every fundamental assumption about the nature of grammar. This is undoubtedly an indication of just how shallow the foundations of linguistics are. In the circumstances, the best I can do is to be as clear as I can about the connection between the analytic and theoretical issues.

2. THEORETICALLY OFFENSIVE FEATURES OF ARONOFF'S PROPOSAL

I turn first to (2). Aronoff (1976:92) maintains, as in (4), that inflectional degree forms are obligatory for some stems and that both degree forms are available for disyllables ending in -ly, periphrastic degree forms being obligatory otherwise. This leads him to expect both more quickly and quicklier, parallel to
ADJs like sprightlier, but instead of *quicklier we have quicker. Hence a truncation rule.

(4) Aronoff’s generalizations for +er:

a. Monosyllabic ADJs (BIG: bigger – *more big) and ADVs (FAST: faster – *more fast) and most disyllabic ADJs in -y (HAPPY: happier – *more happy) have only the inflectional comparative, with lexical exceptions (STUPID: stupider – *more stupid; APT: *apter – more apt).

b. Some disyllabic ADJS and ADVs in -y, in particular those in -ly (LOVELY: lovelier – more lovely; SILLY: sillier – more silly; DEEPLY: deeper, by truncation from *deeplier – more deeply), allow both expressions.

c. Otherwise, ADJs and ADVs have only the paraphrastic comparative (FLAGRANT: *flagranter – more flagrant).

But truncation – ‘morphologically controlled deletion of affixes’, as Kiparsky (1982:23) describes it, or ‘stipulated zeroes in morphology’, as I would put it so as to eliminate the gratuitous derivational view that attends the word deletion – is the sticking point. Kiparsky (1982:23) himself observes, ‘It would obviously be desirable to eliminate this powerful device from the theory’, and offers new analyses for a range of putative instances of truncation; Janda and Manandise (1984) dispose of some further examples. In (5) I elevate this theoretical prejudice against truncation to a general principle.

(5) Position I:
There are no stipulated zeroes in morphological rules.

2.1. Stipulated zeroes in syntax and in morphology

Position I expresses a profound difference between morphology and syntax. In syntax there are stipulated zeroes of several types: empty constituents that require interpretation from context, as in (6a); empty constituents that must be anaphorically connected to antecedent constituents, as in (6b); and gaps, empty constituents that must be associative with filler constituents, as in (6c). But the case for stipulated zeroes in morphology is slim indeed. And given the view – the ‘process’ view expounded in Anderson (1988) and Zwicky (1988) – that morphological rules involve phonological operations on stems, rather than a genuine lexeme-internal ‘syntax’ of stems and affixes, this difference is to be expected, since then affixes do not serve as lexeme-internal constituents bearing meaning on their own (as opposed to expressing the meanings associated with the rules introducing them).
(6) a. The horses moved to the edge of the stream and drank NP[NULL].  
b. I can play racquetball, but Chris can't VP[NULL].  
c. How big did you say it was AP[NULL]?

2.2. Truncation versus subtraction and reduction

I must stress that what (5) prohibits is morphological truncation, that is, the 'deletion' of specific morphemes, or (in nonderivational terms) the stipulation that particular morphemes are present in a morphological representation for some lexeme or form but are without phonological content.

Position I says nothing about the possibility that among the phonological operations on stems that are deployed by morphological rules there might be subtractions, operations that eliminate stipulated portions of stems (eliminating, say, the coda of a final syllable, or everything but this coda). Subtractive morphology in this sense is marked but well-attested.

Position I also says nothing about that possibility that phonological rules might reduce stems, in degemination or apocope or whatever. Phonological reductions are commonplace, of course.

2.3. Deletion versus failure of insertion

The natural alternative to stipulating a morphological zero (a truncation or morphological deletion) is to arrange things so that the morphological material in question simply fails to appear. In general, as I have suggested in work summarized in Zwicky (1989a:secs. 3.4, 5), 'zero inflection' and 'zero derivation' can be described without such stipulation.

The advantage of such a description is that the wellformedness of a lexeme (in instances of derivational morphology) or of a form (in instances of inflectional morphology) is determinable entirely by reference to properties of the unit in question, without recourse to properties of auxiliary representations for this unit or to properties of other units. I will return to this theme, which contrasts (more desirable) static-condition descriptions with (less desirable) derivational descriptions, in Section 4.

3. THEORETICALLY OFFENSIVE FEATURES OF KIPARSKY'S ANALYSIS

Now I turn to (3), some details of which need fleshing out. Kiparsky's treatment avoids stipulating a zero alternant of +ly when it is in combination with comparative +er by blocking the insertion of +er after ADV stems, including those ADV stems with the derivational suffix -ly. It also, according to Kiparsky, correctly predicts the ungrammaticality of forms like *quickerly, since these would involve the application of both rule (3), inserting the comparative
Inflectional suffix +er, and rule (7), inserting the ADV-forming derivational suffix +ly. The crucial claim for Kiparsky here is that (3), applying after an ADJ stem in an ADJ or ADV with the feature [+COMP], is a more specific rule than (7), applying after an ADJ stem in an ADV, so that the preclusion of the general by the specific (Panini’s Principle, also known as Proper Inclusion Precedence and the Elsewhere Condition), would predict that (3) blocks (7).

(7) Insert +ly / ADJ \ldots \rightarrow \text{ADV}

The appeal to Panini’s Principle is, however, unjustified. Let me first note that the reference to ‘ADJ/ADV’ in (3) is not to just any old disjunction of categories. The ADJ and ADV categories constitute a class, both in the syntax and morphology of English and in a general theory of linguistic categories. Using ‘A’ to denote the superclass comprising ADJs and ADVs (so that ADJs are picked out as the [A, -ADV] items and ADVs as the [A, +ADV] items), (3) should be reformulated as in (3’):

(3’) Insert +er / ADJ \ldots \rightarrow \text{A} \cup \text{ADV}

But now it is clear that (3’) is not more specific than (7). Rather, the conditions on their applicability overlap, with (3’) applying to a more general class than (7) in one respect (A being a superclass of ADV) and (7) applying to a more general class than (3’) in another respect (ADV being a superclass of [ADV, +COMP]). What, then, bars *quickly?

One answer to this question, consistent with Kiparsky’s framework of level-ordered5 morphology and phonology, would build on the claim that +ly derives not just an ADV, but an inflectional form — namely, the positive degree — of an ADV. In such an analysis, (7) would be restated so as to stipulate that the result is an ADV [+POS], rather than merely an ADV, as in (7’). Rules (3’) and (7’) would then be incompatible by virtue of the incompatibility of the degree features [+POS] and [+COMP].

(7’) Insert +ly / ADJ \ldots \rightarrow \text{ADV} [+POS]

A rule like (7’) presents no problem in level-ordered morphology, but it runs counter to a fundamental principle separating derivational morphology and inflectional morphology in more traditional approaches to morphology. Following the discussion in Zwicky (1989a:sec. 5), I state this principle as in (8). The problem with (7’) is that it a category-changing inflectional rule; it conflates the functions of a rule of derivational morphology, which predicts the phonological shape of ADV lexemes on the basis of the phonological shape of ADJ lexemes, with those of a rule of inflectional morphology, which predicts the phonological shape of a degree form for ADV lexemes.
Derivational and inflectional morphology constitute separate subcomponents of grammar, with derivational morphology relating the stems of different lexemes and inflectional morphology relating a stem of a lexeme to its forms; derivational and inflectional rules are otherwise independent of one another, except for the option that a derivational rule can build on a stipulated inflectional form of a lexeme rather than on a stem.

Notice that the ungrammaticality of *quickly* follows directly from the position in (8). A derivational rule having the effect of (7) operates phonologically on the stem of an affected ADJ lexeme, not on the [+COMP] form. It would be possible for a derivational rule to stipulate that it always builds on the [+COMP] form of an ADJ lexeme—albeit in a different way that Spanish ADVs in -mente are built on the [FEMININE, SINGULAR] form of an ADJ lexeme (perfectamente ‘perfectly’), rather than on the stem of the lexeme, or to the way that one class of German compound Ns are built on the [PLURAL] form of the first noun lexeme (Männerchor ‘men’s chorus’), rather than on the stem of this lexeme—but this is not what happens in English.

So much for (7'). But (3') also presents difficulties. There are several ways to interpret such an 'insertion' rule in inflectional morphology, but all involve the same problematic move, namely having an inflectional rule (licensing morphological structures for [A, +ADV, +COMP]) refer to a lexeme (with the features [A, -ADV]) that is provided by a derivational rule. There is, first, the 'syntax of words' interpretation in (9b), in which the inserted affix (-er) fills an Af slot provided by the morphotactic rule in (9a). And there is the 'process' (morphology ex nilo) interpretation in (9c). On either interpretation, the relevant rule licenses morphological structures in which a construct with the features [A, +ADV, +COMP] has a daughter with the features [A, -ADV]. But then we have an inflectional form of a lexeme of another category specified by reference to a lexeme of another (derivationally related) category, contra the restrictions in (8).

\[
\begin{align*}
(9) \quad & a. \quad [A, +COMP] \rightarrow [A, -ADV] \text{ Af} \\
& b. \quad \text{Af} \rightarrow er / \text{ADJ } [A[+COMP]] \\
& c. \quad \text{In the context of } [A], \text{ [+COMP] is realized by a form with -er suffixed to an ADJ }
\end{align*}
\]

There is also a 'referral' (Zwicky 1985a,b) version of Kiparsky's approach, in which a rule refers the realization of [+COMP] on a category [A, +ADV] to its realization on the corresponding [-ADV] category. That is, parallel to saying that for German Vs, [PERSON:3] is (in the default situation) realized in whatever way the corresponding [PERSON:1] would be, we might try to say...
that for English ADVs, [+COMP] is realized in whatever way it would be for a corresponding ADJ. But this, too, mixes derivation and inflection, by referring an inflectional form to a derivative lexeme. The reverse – building a derivative lexeme (a kind of referral, in a way) on an inflectional form of a base – is, as I observed above, permitted by (8) and reasonably well attested, but this sort of interaction is neither permitted by (8) nor clearly attested.

3.1. Level-ordered morphology

Nonoccurring forms like *quickerly are a problem only in a framework that allows free mixing of inflectional and derivational morphology, as level-ordered morphology does. Level-ordered morphology gives no special status to (8) and its analogues; nothing in the approach excludes the possibility that the inflectional morphology of a language might make up the last level, but then nothing in the approach would enforce this either, so that inflectional rules might in principle appear in any level.

Rather than treating the distinction between derivational and inflectional morphology as central, level-ordered morphology is instead framed so as to express an intimate association between the phonological interactivity of affixes with their stems, on the one hand, and the linear ordering of affixes, on the other: the more interior an affix is, the greater its phonological interactivity tends to be, and the greater the phonological interactivity of an affix, the more interior it tends to be. I have suggested (Zwicky 1987) that this association, though intimate, is not a necessary one, and that elevating it to theoretical status, via the levels (or strata) of level-ordered morphology and phonology, brings in its train more problems than it solves; other critiques have been provided by Aronoff and Sridhar (1983), Churma (1987), and Fabb (1988).

3.2. Derivation versus inflection

Like the framework of level-ordered morphology, position II imposes reasonably severe constraints on the interactions between different types of morphological rules, and is consequently worth holding to for metatheoretical reasons. Unlike level-ordered morphology, however, position II arises in a natural way from the general organization of grammar: derivational rules are those whose function is to extend the stock of lexemes in a language, while inflectional rules are those whose function is to provide forms that can serve as marks of syntactic constructions. (See Anderson 1988 and Scalise 1988 for related discussion.) The two dimensions of organization are essentially orthogonal to one another, with derivational rules describing classes of lexemes and inflectional rules describing classes of forms.

This is not to say that it is always easy to decide whether a particular formation is derivational or inflectional. The symptoms that we would expect to
follow from the general characterization of the distinction — that the default semantics of inflection should be both abstract and additive, that inflectional forms can be called for by syntactic rules with quite different associated semantics, that inflection should not change syntactic category, that inflection should be morphologically general (yielding paradigms), that multiple inflections will occur in a flat structure within a form while multiple derivations give rise to a hierarchical structure within a lexeme, and that inflection should be phonologically external to derivation — do not necessarily run together in the expected way in every instance.

Consider the English comparatives and superlatives in this light. They exhibit almost all the symptoms of inflection, lacking only the property of morphological generality; as I have already noted, there are many As without comparatives or superlatives. But the property of being comparative or superlative cuts across other properties of lexemes, it is involved in constraints on syntactic form (which I will discuss in Section 7), it forces no change of category, it is manifested in exterior rather than interior affixes, and so on. It is quite clearly inflectional, hence to be treated as a feature that can be distributed by syntactic rules.

4. SINGLE PURPOSES AND DOUBLE DUTIES

I turn now to further data, some pointing in both directions, some favouring Kiparsky's type of analysis (which is consistent with Position I but violates Position II), some favouring Aronoff's (which is consistent with Position II but violates Position I).

4.1. Data

First, there is at least one clear example of a single-purpose, ADV-only, lexeme, namely SOON. SOON has the comparative sooner and superlative soonest, as in (10), even though there is no ADJ stem for the suffixes to attach to (as (3) or (3') would require), and this fact speaks for Aronoff and against Kiparsky. For some speakers, OFTEN has the inflectional degree forms oftener and oftenest and tells the same story as SOON.

(10) Lee arrived sooner than Tracy did, but Stacy arrived soonest of all.

Second, there are a number of 'double-duty' items, homophonous ADV-ADJ pairs (with no meaning difference beyond that following from the category distinction) that are identically inflected, as in (11).
(11)  

\[
\begin{align*}
\text{FAST:} & \quad \text{a fast(\text{er}) car, go fast(\text{er})} \\
\text{EARLY:} & \quad \text{an early/earlier dinner, was over early/earlier} \\
\text{LATE:} & \quad \text{a late(\text{r}) breakfast, end late(\text{r})} \\
\text{HARD:} & \quad \text{a hard(\text{er}) rain, rain hard(\text{er})} \\
\text{LONG:} & \quad \text{a long(\text{er}) meeting, last long(\text{er})} \\
\text{DEEP:} & \quad \text{a deep(\text{er}) dive, dive deep(\text{er})} \\
\text{QUICK:} & \quad \text{a quick(\text{er}) fox, run quick(\text{er})} \\
\text{SLOW:} & \quad \text{a slow(\text{er}) race, go slow(\text{er})} \\
\text{LOUD:} & \quad \text{a loud(\text{er}) band, play loud(\text{er})}
\end{align*}
\]

This array of facts is consistent with both Kiparsky’s and Aronoff’s analyses, given some device for blocking the suffixation of -ly for the ADV members of the pairs, either obligatorily as in (12a) or optionally as in (12b). What is not predicted by Aronoff’s analysis, as Kiparsky (1982:24) points out, is the possibility of a double-duty suppletive inflectional form, like those in (13) in particular. These cannot be the product of Aronoff’s truncation rule (2), since there is no positive -ly form to supply the stem phonology.

(12)  

a.  

\[
\begin{align*}
\text{\textit{FASTLY} ‘quickly’, \textit{LONGLY} ‘for a long time’,} \\
\text{\textit{HARDLY} ‘intensely’, \textit{LATELY} ‘at a late time’}
\end{align*}
\]

b.  

\[
\begin{align*}
\text{QUICK(LY), SLOW(LY), LOUD(LY)}
\end{align*}
\]

(13)  

\[
\begin{align*}
\text{better, worse, best, worst:} \\
\text{a better/worse idea, do better/worse} \\
\text{the best/worst singing, sing best/worst}
\end{align*}
\]

But the double-duty suppletives are a mixed blessing for Kiparsky. He must treat the ADV WELL explicitly as a derivative lexeme based on the ADJ GOOD – presumably as a replacement for \textit{GOODLY ‘in a good manner’} – so that GOOD can provide the ADJ stem for his comparative and superlative rules. And the ADV forms better and best must be treated explicitly as [+COMP] and [+SUP] forms built on the ADJ GOOD, presumably as replacements for \textit{gooder} and \textit{goodest}, these being the forms that Kiparsky’s rules predict. That is, Kiparsky’s treatment here appears to commit him to a particular view of suppletion, that suppletive forms are listed in the lexicon as substitutions for specified strings of morphemes.

This is a necessarily sequential view of the matter, in which GOOD with the feature [+COMP] is assigned the representation \textit{good+er}, which is in turn replaced by better. So long as Kiparsky wants the fact that better and best do double duty to follow from the rest of his analysis, he cannot have recourse to the more straightforward (and nonsequential) analysis, in which GOOD with the feature [+COMP] is assigned the shape better directly, the existence of this shape in the lexicon then blocking the application of rules for the realization of
The (closely linked) theoretical points at issue, treated at greater length in Zwicky (1989b), are (14) and (15).

(14) *Position III:*
Morphological rules place static conditions on the properties of constructs (lexemes or forms); in particular, they make no reference to phonological representations other than those of stems and forms for lexemes.

(15) *Position IV:*
Interactions between rules are governed not by sequential application but by a logic of defaults and invocations; bleeding-style interactions occur when one rule overrides another, feeding-style interactions when one rule invokes another, implicitly or explicitly.

The part of (15) that is germane to the analysis of suppletive degree forms is the clause about bleeding-style, or overriding, interactions between rules. Overrides are predicted, *inter alia*, by Panini's Principle and by a principle of Lexical Blocking, according to which the lexical listing of properties for a construct precludes the application of rules that predict incompatible properties for it.

According to (15), we ought always to be able to appeal to Lexical Blocking (rather than replacement) in the analysis of suppletive lexemes like the ADV WELL and suppletive forms like *better* and *best* — and in fact Kiparsky has now argued (in a paper delivered to the 1988 International Morphology Congress in Krems), on the basis of extensive parallels between suppletion and gaps in paradigms, for blocking rather than replacement as the operative mechanism in suppletion — but this appeal seems to be unavailable for Kiparsky's 1982 analysis. Aronoff's analysis is in no better shape in this regard, since it too depends on sequential application of rules, with a form like *quicklier* serving as a crucial intermediate stage in the derivation of the ADV form *quicker*.

4.2. Static-condition frameworks

The theoretical proposal in (14) is a monostratal program for morphology, parallel to the monostratal program for syntax enunciated in such works as Gazdar et al. (1985). The advantages of a monostratal approach, in any component of grammar, follow from the fact that such an approach requires that an expression satisfy various local conditions on its parts, without referring to auxiliary representations — 'remote representations' of one sort or another — in a derivation for it. Multistratal, derivational approaches are formally more powerful than monostratal, static-condition approaches, since (ceteris paribus) multistratal approaches allow the sorts of conditions available in a monostratal
approach to be stated on two or more types of representations, a move that can be expected to increase the class of describable systems, quite possibly to the full class recognizable by Turing machines. This is a move we should be reluctant to make; if all we can say about the morphology or syntax (or whatever) of languages is that such systems are recursively enumerable, we have made no claim of interest to linguists. The metatheoretical point is that we want a theory that is conceptually as rich as is needed to express linguistically significant generalizations, but is formally as restricted as is possible, given what we know about the formal properties of languages. Even very rich static-condition frameworks keep us close to systems describable by context-free grammars (probably, as Gazdar 1988 suggests, within the class of systems describable by indexed grammars), a fact that should recommend such frameworks to the prudent theoretician.

Let me illustrate the difference between static-condition and derivational frameworks by means of some familiar syntactic facts in English: (a) the occurrence of a special POSSESSIVE case marker (usually 's) on NPs serving as determiners (this kangaroo's hat), versus the absence of such a marker for other uses of NPs; and (b) the fact that among the conditions on the SUBJECT-TO-OBJECT RAISING construction is a dependency between the direct object and the infinitival VP complement in this construction, a dependency that (except for case and verb-form marking) exactly reproduces a general dependency between subjects and their VP predicates, as in (16).

(16) a. I believe Lee to be a spy;        b. Lee is a spy;
I believe it to be raining;            It is raining;
I believe there to be penguins here;  There are penguins here

In a derivational framework we would posit remote representations in which ACCUSATIVE case is uniformly assigned to NPs – this will account for the appearance of ACCUSATIVE forms whenever POSSESSIVE or NOMINATIVE forms are not required in particular constructions – plus a rule altering ACCUSATIVE to POSSESSIVE case for NPs serving as determiners. And for the sentences in (16a) we would posit remote representations in which the verb BELIEVE has clausal objects, with essentially the content of the examples in (16b), plus a rule altering such representations so as to derive the structures appropriate for the examples in (16a).

In a static-condition framework we would treat ACCUSATIVE case not as 'basic' but as 'default'. Instead of a relationship between two classes of representations (one with ACCUSATIVE case only, the other with both ACCUSATIVE and POSSESSIVE case), we posit a relationship between two rules, according to which the applicability of the rule for POSSESSIVE case overrides, blocks, or precludes the application of the rule for ACCUSATIVE case. Both rules place conditions on (one stratum of) representations, but their
conditions are incompatible, and a stipulation is needed to describe which one applies when they are in conflict. As for the sentences in (16a), we would treat the subject-predicate dependency that holds between the direct object and complement within their VPs not as 'basic' but as 'invoked'. That is, we would say that among the conditions that a rule of SUBJECT-TO-OBJECT RAISING places on the immediate constituents of the VPs it licenses is one requiring that the direct object and complement be licensed as subject and predicate, respectively, by the SUBJECT-VP rule, so that the SUBJECT-TO-OBJECT RAISING rule appeals to, calls up, or invokes the SUBJECT-VP rule. We stipulate that certain expressions must satisfy (secondary) conditions in the invoked rule in addition to the (primary) conditions in the invoking rule.

The point at issue here is not the ultimate correctness of the sorts of analyses I sketch for POSSESSIVE case marking and for the SUBJECT-TO-OBJECT RAISING construction. Rather, my intention is only to show how the effect of (certain sorts of) derivational descriptions can be achieved in a static-condition framework. POSSESSIVE marking merely serves as my example of an override/default relationship, SUBJECT-TO-OBJECT RAISING as my example of an invoking/invoked relationship. In either case, the relevant relationships in any sort of static-condition framework are between rules, not (as in derivational frameworks) between representations.

The positions in (14) and (15) carry over a static-condition outlook from syntax into morphology. According to this view, we need not appeal to auxiliary morphological representations like GOOD-er, but can instead refer entirely to conditions on the applicability of rules. In the case of better, the condition is a particularly simple, and universal one, namely that the listing of properties of expressions overrides conflicting properties called for by rules.

5. A MORPHOLOGICAL RAPPROCHEMENT

I now return to the English comparatives and superlatives. What we want is an analysis with the virtues of both Aronoff's and Kiparsky's approach, but without the theoretical defects of either.

5.1. The two-rule analysis

I propose (with Aronoff) inflectional rules realizing [+COMP] and [+SUP] on both ADJS and ADVS, as in (17), rather than (with Kiparsky) basing the ADV forms on an ADJ source. (In (17) I give a formulation that pays no attention to the phonology of the A stem, postponing until Section 8 the question of how to describe phonological restrictions on these forms.) However, I posit two relevant rules licensing an ADV derived from an ADJ, as in (18) - DR1, calling for a -ly suffix, and DR2, involving no change - and (with Kiparsky) propose to
account for the configuration of occurring forms via interactions between rules, rather than (with Aronoff) by appeal to an additional 'fix-up' rule.

(17) In the context of [A],
   a. IR1: [+COMP] is realized by a form with suffix -er;
   b. IR2: [+SUP] is realized by a form with suffix -est.

(18) a. DR1: To a [A, -ADV] lexeme there corresponds a [A, +ADV] lexeme with suffix -ly;

The effect of these rules is to predict two ADV[+COMP] forms corresponding to the typical ADJ, each form involving one of the derivational rules in (18) plus the inflectional rule in (17a) – ADJ+li+er (*quicklier) involving DR1, ADJ+er (quicker) involving DR2. For standard English at any rate, DR1 (predicting the ADV lexeme QUICKLY, given that there is an ADJ lexeme QUICK) is the default ADV-forming rule, so that DR2 (predicting the ADV lexeme QUICK, given that there is an ADJ lexeme QUICK) manifests itself whenever DR1 is inapplicable, which is what happens for the (systematically unacceptable) [+COMP] and [+SUP] forms of a garden-variety ADV like QUICKLY.

DR1 is the default with respect to DR2 in the same way that the phonological rule (in my variety of English) that requires /l/ to be velarized is the default with respect to a rule requiring light l in syllable onsets before front vowels (obligatorily as in cleat, flit, plate, and let. variably as in lag); whenever the light-l rule is inapplicable, the dark-l rule applies (obligatorily in kill, held, slug, and lone, variably again in lag). Similarly, DR1 applies whenever DR2 is inapplicable (or optionally applicable).

5.2. Evidence for DR2

There is a great deal of evidence for a rule zero-deriving ADVs from ADJs in English.

5.2.1. Double-duty items

DR2 describes the ADJ-ADV pairs listed in (11), as well as double-duty items like those in (19), which happen to have no inflectional degree forms.

(19) RIGHT 'correct', WRONG 'incorrect':
   the right/wrong answer, answer the question right/wrong
As observed by Follett/Barzun (1966:50), "The truth is that many adverbs, including right and wrong, are formed without -ly. They do not differ in appearance from adjectives, but they are adverbs. We go straight to the point, not straightforwardly; a transgressor of speed limits is driving too fast, not too fastly"; also cited are wide awake, doubtless and regardless. Several types of double-duty items deserve special comment.

5.2.1.1. Sentence adverbials

Follett/Barzun (1966:52) cite "...words of adjectival form (without -ly) but adverbial function — such words as relative, preparatory, preliminary, irrespective, independent' heading sentence adverbial phrases, as in Preparatory to drafting legislation, the committee is now conducting hearings. I assume that DR2 describes the ADVs RELATIVE, IRRESPECTIVE, and so on as based on the homophonous ADJs (and as inheriting from them such syntactic idiosyncrasies as an accompanying P — TO for RELATIVE, OF for IRRESPECTIVE, and so on — in the same way that derived Ns like REBELLION and HAPPINESS inherit idiosyncrasies from their input Vs and ADJs).

5.2.1.2. Frequency ADVs

DR2 also provides an account of a curious set of facts about frequency ADVs derived by suffixing -ly to Ns denoting units of time, as in (20a) and (20b). These ADJs are ineligible as inputs for DR1; lexemes like those in (20c) are absolutely unacceptable, and are not attested. But they are eligible as inputs for DR2, which then provides the appropriate frequency ADVs, as in (20d). That is, DR2 provides an account for the nonappearance of adverbial -ly in such lexemes, an account that does not appeal to the stipulation of a morphological zero — recall (5) above — despite the appearance of morphological haplology here (see Stemmerberg (1981) and Menn and MacWhinney (1984) for general discussions of this issue).

(20)  a. **HOURLY, DAILY, WEEKLY, MONTHLY, YEARLY**
      b. an hourly rate, their weekly visits
      d. We checked the heat hourly. They travel to Paris almost weekly.

5.2.1.3. Degree ADVs

And there is the fact that the degree ADVs MUCH, MORE, and MOST, as in (21a), are homophonous with quantifier ADJs, as in (21b), a fact I would describe by having the ADVs zero-derived from the ADJs.\textsuperscript{11}

(21)  a. Dana is much happier now. Whitney is more industrious than anyone I know. Troy is the most ambitious person I've met.
b. There isn’t much wine left. There is more rice than I had expected. This is the most bread I’ve ever eaten.

5.2.2. Alternative ADVs

There are also ADJs with both the corresponding ADV described by DR1 and the one described by DR2. Note Partridge (1963:18) on the -ly suffix: ‘Some adverbs...may occur with or without the suffix...; e.g., slow(ly), quick(ly), cheap(ly). The -ly forms are more polite, the root forms are more vigorous. Sometimes [as for HIGH and HIGHLY] there is a difference in meaning...’

It is also true that in nonstandard varieties in all parts of the English-speaking world, the ADVs described by DR2 serve as alternatives to those described by DR1. In fact it would not be unreasonable to argue that in some nonstandard varieties it is DR2, rather than DR1, that is the default ADV-deriving derivational rule.

The significance of ‘nonstandard’ DR2 is suggested by the fact that prescriptive grammars routinely caution against the forms it predicts – usually confusing form and function and accusing nonstandard speakers of using an ADJ where an ADV is called for, as when Foerster and Steadman (1931:166) advise, ‘Where there is a distinction in form between adjective and adverb, observe this distinction carefully’, correcting RAPID in I think he talks too rapid to RAPIDLY, and REAL in He is a real clever man to REALLY; or when Imscher (1972:475) addresses ‘CONFUSION OF ADVERBS AND ADJECTIVES’ by warning, ‘Ordinarily a word ending in -ly can be identified as an adjective instead of an adverb if it can be compared by inflection... Confusion, however, occurs in actual usage’, and contrasting the ‘colloquial use of adjective’ in I was driving along pretty steady and She seemed terrible upset with the ‘standard use of adverb’ in I was driving along pretty steadily and She seemed terribly upset; or when Partridge (1963:18) asserts boldly, ‘ADJECTIVE FOR ADVERB. This is an illiteracy...’

6. CHARACTERISTICS OF THE TWO-RULE ANALYSIS

This analysis avoids the theoretically unpalatable features of Aronoff’s and Kiparsky’s. Consistent with (5), there are no stipulated zeroes. Consistent with (8), derivational and inflectional morphology are separated, with the lexeme stems predicted by derivational rules (in particular, DR1 and DR2) serving as the inputs to inflectional rules (in particular, IR1 and IR2). Consistent with (14), all four of these morphological rules are framed as static conditions, with no reference to stipulated intermediate stages in a derivation.
6.1. Zero derivation

The two-rule analysis does posit (in DR2) zero derivation, or conversion, as in (22) – a type of lexeme-to-lexeme prediction that is amply attested in the world’s languages, and certainly in English, as in the conversions listed in (23).\textsuperscript{12}

(22) Position V:
DRs can stipulate that stem of the output lexeme is identical to the stem of the input lexeme.

(23) a. Vs to Ns, as in the motion Ns \textit{RUN, WALK, STROLL, CRAWL}
b. Ns to Vs, as in the Vs of removal \textit{BONE, SHELL, SKIN, WEED}
c. nationality ADJs to nationality Ns, as in \textit{ALSATIAN, SWISS, QUEBECOIS, TOGOLESE}

This observation would not be worth making except for the fact that other assumptions about morphology entail the denial of Position V, and possibly of Position I (having to do with stipulated zeros) as well. Suppose we assume (with Kiparsky and with Lieber 1981 and Selkirk 1982, among others) that all derivational morphology is endocentric, with affixes serving as the heads of their morphological constructions. Consider the N \textit{STROLL}, the V \textit{SKIN}, and the N \textit{TOGOLESE}. There must be rules predicting the category of such examples (as well as their phonology). Either these are derivational rules or they are not. They cannot be zero derivations (contra Position V), since then there would be no affixes to serve as heads of the morphological constructions. So either there are (three different) affixes, all stipulated to be zeros (contra Position I), or else the theoretical framework must be enriched by positing some new sort of rule (other than derivational rules) relating lexemes, as Lieber (1981:ch. 3) in fact does.

Now of course I am not assuming that all derivational morphology is endocentric – I am not even adopting the general ‘syntax of words’ view of morphology that makes this assumption plausible\textsuperscript{13} – so that a zero-derivation rule like DR2 presents no difficulty.

6.2. Stipulated overrides

The two-rule analysis also assumes, as in (24), that derivational rules serving the same function can stand in stipulated override-default relationships, as DR2 does to DR1.
Quicker, more quickly, *quicklier

(24) *Position VI:
In addition to override/default relations predicted by universal principles, there can be parochial stipulations of such relations, involving two particular rules of the same type (two derivational rules or two inflectional rules) and serving the same function.

Parochial stipulations of overrides are familiar from inflectional morphology, where a 'less regular' realization rule, like the one in (25a), overrides a 'more regular' one realizing the same grammatical categories, as in (25b); the labeling of such rule pairs as less versus more regular is equivalent to stipulating the former as the override and the latter as the default. The same sort of rule relationship is common in derivational morphology as well, as when the ('more productive') rule deriving abstract N from ADJ by suffixing -ness, as in (26a), serves as the default as against other ('less productive') rules having the same function but involving other suffixes, as in (26b-e).

(25) In the context of [V],

a. [PASTPARTICIPLE] is realized by a form with suffix -en:
   shaken, taken, stolen, ridden

b. [PASTPARTICIPLE] is realized by referral to [PAST]:
   thought, put, baked, patted

(26) a. PLAINNESS, FIRMNESS, CONCRETENESS, RAPACIOUSNESS
b. -ity: SANITY, OPACITY, LOCALITY, SALINITY
   -(c): OBSTINACY, EFFEMINACY, CONSISTENCY, INDECENCY
d. -(c)e: PERSISTENCE, RELUCTANCE, TURBULENCE, ELEGANCE
e. -th: DEPTH, WARMTH, WIDE

Note that stipulated overrides in morphology are never absolute, since lexemes and forms can always be listed: hence the possibility of alternative lexemes like OPACITY and OPAQUENESS, and of alternative forms like the pasts dreamt and dreamed.

6.3. One last bash at *quicklier

The two-rule analysis is all very well, but we have still not given any account of *quicklier. For this, some additional statement is needed. I claim that the appropriate stipulation is that ADVS derived by DR1 have no [+EXTENT] (that
is, no [+COMP] and [+SUP]) forms, that any output of DR1 belongs to a paradigm class with a defective paradigm.

This might look like the crassest sort of ad hoc stipulation, but in fact it can be seen as nothing more than the coincidence of two phenomena, each of which is quite ordinary: defectivity as a property of paradigm classes, as in (27); and derivational rules that predict the paradigm class of their outputs, as in (28).

(27) Position VII:
A paradigm class can be characterized in part by lacking particular forms – that is, by a pattern of defectiveness.

(28) Position VIII:
Among the properties derivational rules can require their output lexemes to have is membership in a paradigm class.

Paradigm classes characterized by defectivity are not uncommon. It is well-known that the English modal verbs, for instance, have a strikingly defective paradigm, lacking all [-FINITE] forms, as (29) illustrates. I am claiming that there is a paradigm class of As, call it CLASS:NO, characterized by lacking all [+EXTENT] forms. (For As of CLASS:NO, there is only a [-EXTENT] form. Since English has no inflectional rules realizing [-EXTENT], even for As of CLASS:YES, this form is phonologically identical to the A stem.)

(29) a. BASE: *We saw them must sing versus We saw them have to sing
b. PRESENTPARTICIPLE: *We saw them musting sing versus We saw them having to sing
c. PASTPARTICIPLE: *They have musted sing versus They have had to sing

Now membership in a paradigm class, as in (30a), is one of the properties of a lexeme. It is a 'purely morphological' property, since syntactic rules make no reference to it. There are also properties of several other types: possession of (overt) grammatical categories (or 'morphosyntactic' properties), like those in (30b), which are distributed by syntactic rules and realized via inflectional morphology (as in the PASTPARTICIPLEs broken and fixed) or as particle lexemes (like the INFINITIVE TO); membership in a syntactic category (like N, V, or A); membership in a syntactic subcategory, as in (30c), which is to say, membership in a covert grammatical category, a word-rank category mentioned in a specific syntactic rule; phonological properties, in particular the information encoded in the stem of the lexeme; and semantic properties.
(30) a. purely morphological property:
   -en-PASTPARTICIPLE class for Vs in English,
   DECENSION:3 versus DECENSION:1/2 for Ns in Latin
b. morphosyntactic property:
   GENDER:FEMININE, MASCULINE, NEUTER in German, VERB-
   FORM:PASTPARTICIPLE, PRESENTPARTICIPLE, BASE, PAST,
   INFINITIVE,... in English
c. subcategory:
   V licensed to occur with two NP objects,
   N licensed to occur with numeral modifiers

A given derivational rule then relates the semantic, phonological, (syntactic)
subcategorial, (syntactic) categorial, morphosyntactic, and purely morphological
properties of an input lexeme to the corresponding properties of an output
lexeme. In particular, it can place conditions on the morphosyntactic and purely
morphological properties of the output, as when the German derivational rules
describing diminutives in -chen (Mädchen) and -lein (Fräulein) impose GENDER:NEUTER on their output lexemes.

In fact, the imposition of (default) values for the feature CLASS by par-
ticular derivational rules pervades degree inflection in English. Prefixal derivation
in English, in particular the rules deriving negative ADJs by prefixing un-
and in-, preserves the CLASS value of the input on the output, as (31) illus-
trates. Lexemes derived by certain rules, sampled in (32a), are generally
CLASS:NO, even when they are otherwise phonologically suitable for inflection
(*cubicker, *childisher, *bluishier), while those derived by other rules, sampled
in (32b), are generally CLASS:YES so long as they are phonologically suitable
(bonier, worldlier).

(31) a. CLASS:YES: HAPPY (happier), UNHAPPY (unhappier)
   b. CLASS:NO: ACTIVE (*activer), INACTIVE (*inactiver)

(32) a. Generally CLASS:NO:
   ADJ derived from N with -ic: CUBIC, CELTIC, ATOMIC
   ADJ derived from N with -ish: CHILDISH, ROGUISH, CLOWNISH
   ADJ derived from ADJ with -ish: GREENISH, BLUISH, YOUNGISH
b. Generally CLASS:YES:
   ADJ derived from N with -y: BONY, CHILLY, CURLY
   ADJ derived from N with -ly: WORLDLY, GHOSTLY, SAINTLY

Now note the striking contrast between these ADJs derived from Ns by suffix-
ing -ly – what I will call DR3, covering WORLDLY and similar ADJs in (32b)
– and ADVs derived from ADJs by suffixing -ly, that is, by DR1. The outputs
of DR3 are CLASS:YES if they satisfy phonological requirements for inflec-
tibility, but the outputs of DR1 are as robustly CLASS: NO – this is the *quicklier with which we began – as are ADJs derived with -ic, like CUBIC. The offense of *quicklier is a morphological, not a phonological, offense.

6.4. Single purposes and double duties again

A garden-variety ADJ, like CUTE or BRIGHT, has a corresponding ADV[-EXTENT] supplied by DR1: cutely for CUTELY, brightly for BRIGHTLY. It also has a corresponding ADV[+EXTENT] supplied by DR2: cuter for the ADV CUTE, brighter for the ADV BRIGHT. The ordinary pattern, then, is for ADVs in standard English to have a paradigm that is pasted together from the paradigms associated with the outputs of two different DRs.

Against this background, I return briefly to three sets of data from Section 3: ADV-only inflectible lexemes like SOON; ADJ-ADV twins like FAST; and the double-duty suppletives better/best and worse/worst, which serve for both ADJ and ADV.

ADV-only lexemes are straightforward, since nothing I have said would require that there be an ADJ stem for every inflectible ADV.

ADJ-ADV twins (as in (11) above) come in two types, illustrated by FAST and QUICK. FAST-type ADJs, which have no DR2 counterpart ADVs, are just exceptionally ineligible for DR1; DR2 provides an ADV FAST corresponding to the ADJ FAST whether or not there is an ADV derived by DR1. QUICK-type ADJs, which have both counterpart ADVs (QUICK and QUICKLY), are exceptionally eligible for DR2 as well as for the default DR1.

The ADJ BAD follows the ordinary pattern of CUTE or BRIGHT, with the complication that it has suppletive [+EXTENT] forms, worse and worst. Its ADV[-EXTENT] correspondent badly is provided by DR1 and its ADV[+EXTENT] correspondents worse and worst are carried over from the ADJ, thanks to DR2 (which has the effect of making its output identical to its input except as stipulated otherwise). The ADJ GOOD is parallel to BAD, with the further complication that its ADV[-EXTENT] correspondent is not the goodly provided by DR1, but rather the idiosyncratic well.

7. THE SYNTACTIC ISSUES

The interaction between DR1 and DR2 provides quicker in the absence of *quicklier. But what makes more quickly, the periphrastic alternative, available? And how do we prohibit double degree expressions like *more quicker, which are ungrammatical in standard English?
7.1. The syntax-morphology interface

We might attempt to account for these syntax-morphology interactions by treating the two domains as one, in the fashion of early transformational grammar. But despite Aronoff's (1976:94) remark that comparative inflection might be 'syntactic', I propose to preserve the ('lexicalist') view that syntax and morphology are autonomous components of grammar, interacting with one another in very restricted fashion, as in (33) and (34). I will consider the metatheoretical benefits of such autonomy assumptions in the next section. For the moment, I merely point out that these benefits seem to me to justify upholding the autonomy assumptions so long as is reasonable, even though the assumptions have been abandoned, or relaxed to varying degrees, by a number of investigators (among them, Fabb 1984, Hocksema 1984, Marantz 1984, Sproat 1985, and Baker 1987).

(33) Position IX:  
Syntactic rules have no access to the morphological composition, or the purely morphological properties, of the lexemes instantiated by the syntactic words whose distribution these rules describe.

(34) Position X:  
Morphological rules have no access to the syntactic properties of the expressions within which the lexemes and forms they describe are instantiated.

Somewhat more concretely, syntactic rules express generalizations about the association of semantics to phrasal and clausal expressions; in so doing, they distribute properties (both purely syntactic and morphosyntactic) within these expressions, ultimately to individual constituents of word rank, that is to syntactic words (or 'synwords'), as I shall call them for the sake of clarity; in the next section I will address the conceptual distinction between synwords as syntagmatic entities and lexemes as paradigmatic entities). Morphological rules express generalizations about the properties of lexemes, including their lists of forms. An expression is wellformed if its synwords have the properties required by the syntactic rules (or stipulated in an idiom template) and if each synword instantiates a form with the properties required by the morphological rules (or stipulated idiosyncratically in the lexicon). That is, an expression must be simultaneously wellformed from the morphological and the syntactic point of view.

Even more concretely, let us return to the facts about comparatives and superlatives.14 I will assume that degree ADVs – those that modify As, among them the examples in (35) – have the feature [+DEGREE], while modifiers of V, VP, and S are [-DEGREE]. Syntactic rules will have to be responsible for
licensing [A, -DEGREE, +EXTENT] synwords like the distinguished ones in (36a); for licensing [A, +DEGREE, +EXTENT] synwords as in (36b); for licensing [A, -DEGREE, -EXTENT] synwords as in (36c); and for prohibiting redundant [+EXTENT] synwords as in (36d).\(^\text{15}\)

(35) \textit{VERY, MUCH, A LITTLE, NO, HOW, THAT, TOO, ENOUGH, SO, AS, MORE, MOST,...}

(36) a. much FASTER than a speeding bullet; by far the BIGGEST of the problems
b. much MORE astounding than a speeding bullet; by far the MOST impressive of the problems
c. much more IMPRESSIVE than a speeding bullet; by far the most IMPRESSIVE of the problems
d. *much MORE QUICKER

The syntax then provides for structures of several types, and the lexicon supplies lexeme forms to fit in the synword slots within those structures. An expression is illformed if it fails to satisfy syntactic requirements, as (37a) does, or if it fails to satisfy morphological requirements, as the examples in (37b) do. Expressions like those in (37c) satisfy all the relevant requirements of both types, and so are wellformed.

(37) a. *more quicker than a speeding bullet
b. *qucklier than a speeding bullet; *impressiver than Superdog
c. quicker than a speeding bullet; more quickly than a speeding bullet

7.2. Lexicalism

Position IX, a Principle of Morphology-Free Syntax, and Position X, a Principle of Syntax-Free Morphology, together amount to a strong form of so-called 'lexicalism' in morphology. But there is a rich collection of apparent counter-examples to these component-autonomy assumptions. As Baker (1988) has noted, the obvious alternatives are either to abandon the autonomy assumptions – this is Baker's choice – or to adopt some type of 'coanalysis', along the lines of the proposals set forth in Sadock (1985) or Di Sciullo and Williams (1987). I will argue here that some sort of coanalysis, providing separate analytic treatments for the syntax and morphology of a language, is required on general principles, so that there is no justification for abandoning autonomy assumptions as well. That is, an adequate grammatical framework cannot assume that the units of syntactic analysis coincide with those of morphological analysis, so that there is no point in further relaxing the framework by abandoning hypotheses like (33) and (34).
The crucial observation is that syntax and morphology are not just separate analyses of the same material; they are analyses of different sorts, for different purposes. What I have called the 'synword' lies at the bottom of a hierarchy of ranks of constituents in syntax, a hierarchy to which the 'phrase' and 'clause' also belong. Note that an expression is a constituent by virtue of the fact that it constitutes a unit within other expressions. What I have called a 'lexeme' lies at the bottom of a hierarchy of types of potentially free units, a hierarchy including several varieties of larger expression types. What it means to say that an expression instantiates a potentially free unit is of course to assert that it can occur on its own. It is easy to enumerate examples of constituents that cannot occur on their own, like they be admitted in I insist they be admitted, and of freely occurring material that does not make a constituent, like Flowers to the judge as an answer to the question What did Pat give to whom?. It seems to me that there is no more reason to expect that synwords and lexemes will always coincide than there is to expect that syntactic constituents and wellformed fragment utterances will always coincide.

Assuming some sort of coanalysis does not require that either synwords or lexemes be unanalyzable within their domain. My position is consistent with there being synwords within synwords, just as there can be VPs within VPs in expressions like must have been starting to be attacked by wolves. And of course it is consistent with there being lexemes within lexemes, such phenomena being the grist of the derivational morphological mill.

This position is still, however, 'lexicalist' in the sense that the only properties of a lexeme that are available for reference by syntactic rules are its syntactic category and subcategory, plus any morphosyntactic properties it happens to possess inherently, like GENDER for Ns. Unavailable are purely morphological properties (including morphological composition, that is, application of a particular morphological rule or phonological operation within a morphological rule), phonological properties, and semantic properties. The metatheoretical virtues of this sort of 'lexicalism' follow from these exclusions. All of the following properties are predicted to be irrelevant to syntax, except insofar as they are (imperfectly and indirectly) reflected in (syntactic) categorial, subcategorial, or inherent morphosyntactic properties: the paradigm class to which a lexeme belongs (DECLENSION:1/2 for Latin N lexemes), the occurrence of a particular morpheme within a lexeme (causative -ize in English Vs) or a form (-en PASTPARTICIPLE for English V forms), the occurrence of an affix with specified phonology within a lexeme (-ly in English As like WORLDLY and SADLY) or a form (/r/ affix for English N forms like kangaroos and kangaroo's), the phonology of a lexeme or form (the number of syllables it has, or whether it ends in a sonorant consonant), the referential semantics of a lexeme (whether it refers to plants gathered for culinary or medicinal purposes, whether it refers to events with natural end points).
7.3. A sketch of a syntactic analysis

Although a full analysis for the relevant English data would have to have many details filled in, I can sketch here a line of syntactic analysis that will achieve the right results. First, I posit two AP constructions associated with the semantics of comparison and with the occurrence of a [+EXTENT] synword within the AP, and similarly for superlative. The constructions INFLECTED COMPARATIVE and INFLECTED SUPERLATIVE require that the head A of the AP have the morphosyntactic property [+COMP] and [+SUP], respectively. The constructions PERIPHERASTIC COMPARATIVE and PERIPHERASTIC SUPERLATIVE (periphrastic comparison and superlative, respectively) require that a [+DEGREE] synword modifying the AP's head have the morphosyntactic property [+COMP] and [+SUP], respectively. [ADV, +DEGREE, +COMP] and [ADV, +DEGREE, +SUP] are the 'particle lexemes' (Zwicky 1989a:sec. 6.1) MORE and MOST, respectively.

Second, I assume that [-EXTENT] is the default for A expressions in syntax, so that [+COMP] and [+SUP] appear only when they are licensed by some rule. We then have an account of the ungrammaticality of expressions like those in (38), involving restrictions that are unlikely to be entirely semantic in nature.

(38)  *more happiest, *most happier,
        *too happier/happiest to talk, *too bigger/biggest by six feet,
        *so happier/happiest that I couldn't talk, *as happier/happiest as anyone

And third, I assume that INFLECTED COMPARATIVE and PERIPHERASTIC COMPARATIVE (similarly, INFLECTED SUPERLATIVE and PERIPHERASTIC SUPERLATIVE) stand in a stipulated override/default relationship. If INFLECTED COMPARATIVE is used, PERIPHERASTIC COMPARATIVE is inapplicable; they cannot be used to reinforce one another. Of course PERIPHERASTIC COMPARATIVE is, in a sense, 'always available', as when some A lexeme lacks a [+COMP] form, or when conditions on coordination demand a [-EXTENT] form for parallelism, even for a lexeme that has [+EXTENT] forms, as for SMART in (39).

(39) It is a more attractive, smart, and ingenious idea than any other I've heard.

The first of these steps depends on our allowing, as in (40), inflectional features to be distributed to a modifier, and not always to the head. A similar move will allow us to describe the appearance of negation in (the modifying ADV) NOT in VP[-FINITE]s like (41a), versus its appearance as an inflection on a (head) auxiliary V in VP[-FINITE]s like (41b) (Zwicky and Pullum 1983); and perhaps to describe the expression of the grammatical category of 'possession'
within an NP, either in a (modifying) PP with head P _OF_, as in (42a), or as an
inflection on the (head) determiner of the NP, as in (42b), though most details
of this analysis are controversial. The third of these steps depends on extending
Position VI, in (24), to syntax as well as morphology, as in (43).

(40) _Position XI:_
Syntactic rules can require that a property of a construct be distributed
to its head or to a modifier of that head.¹⁶

(41) a. _not been to Vienna_
b. _haven't been to Vienna_

(42) a. _recent destruction of the city_
b. _the city's recent destruction_

(43) _Position XII:_
In addition to override/default relations predicted by universal principles,
there can be parochial stipulations of such relations, involving two
syntactic rules that serve the same function.

Treating INFLECTED COMPARATIVE and PERIPHRASTIC COMPARATIVE
(and INFLECTED SUPERLATIVE and PERIPHRASTIC SUPERLATIVE) as
distinct syntactic constructions predicts that there could be contexts in which
only one of them is permitted, and this prediction is fulfilled in English. There
are at least three such contexts. First, [+DEGREE] comparatives and superla-
tives, those serving as modifiers of A rather than as predicates or as [-DE-
GREE] modifiers, must be periphrastic; compare the [+DEGREE] examples in
(44a) with the predicative examples in (44b) and the [-DEGREE] modifiers in
(44c).¹⁷

(44) a. _more deeply philosophical(ly), *deeper philosophical(ly)_
b. _Terry is more deep, Terry is deeper_
c. _Sandy dug more deeply, Sandy dug deeper_

Second, there is a 'metalinguistic comparative' construction METACOMPARA-
TIVE (Pinkham (1982:sec. B3.1)) that uses PERIPHRASTIC COMPARATIVE
only, as in (45a); (45b) is grammatical, but it does not have the right meaning
to be an instance of METACOMPARATIVE.

(45) a. _Jan is more bad than mischievous 'It would be more appropriate to
say that Jan is bad than to say that Jan is mischievous'_
b. _Jan is worse than mischievous_
Third, there is an ABSOLUTE SUPERLATIVE construction that uses PERIPHRASTIC SUPERLATIVE only, as in (46a); (46c) is grammatical in context — for instance, following the material in (46b) — but it does not have the right meaning to be an instance of ABSOLUTE SUPERLATIVE. This treatment of METACOMPARATIVE and ABSOLUTE SUPERLATIVE depends on stipulating invocation relationships between syntactic rules, as in (47); see Zwicky (1989b) for further discussion of invocation between rules.

(46) a. You are most polite 'You are extremely polite'
b. Chris and Tracy are very polite, but...c. You are politest

(47) Position XIII:
One syntactic rule can invoke another specific rule. When this happens, all the syntactic conditions of the invoked rule are in force, in addition to any other conditions of the invoking rule; the invoked rule contributes its semantics insofar as this does not conflict with the semantics of the invoking rule.

8. THE PHONOLOGICAL ISSUE

I now return to the involvement of phonological shape in the availability of [+EXTENT] forms for particular lexemes. Few topics in English morphology have excited so many, and so many different, proposals. Aronoff's version, referring to number of syllables and segmental phonology (in particular, ending in -y), was summarized in (4); Evans and Evans (1957), quoted in (48), suggest more detailed rules of thumb; Zwicky (1969), building on the discussions in Kruisinga (1932:3.62-7) and Jespersen (1949:347-63), gives the principles in (49); and Pullum and Zwicky (1984:113-4) cite generalizations from Sweet (1891) that refer to number of syllables and segmental phonology (ending in -er, as in TENDER and BITTER, and ending in a syllable with a tense vowel, as in OBSCURE and POLITE).

(48) Evans and Evans's (1957:105) generalizations:18
a. 'As a rule, the inflected form is preferred for short words, especially those ending in -d, -t, -r, or y., such as loud, soft, clear, happy.'
b. 'The form using more or most is preferred for longer words, especially those ending in (1) more than one unstressed syllable, such as tyrannical; (2) -ive or -ile, such as active and hostile; (3) -s, -ish, or -est, such as curious, foolish, honest; or (4) -ed or -ing, such as crooked and cunning.'
c. 'The qualified form... is required with (1) adverbs ending in -ly; (2) any word that can only be used predicatively, such as afraid, aware, content; (3) the word eager; (4) words that have an unusual or foreign form, such as antique, burlesque, bizarre.'

(49) Zwick's (1969:414) generalizations:

a. Disyllabic lexemes ending in -le (Noble), -er (Tender), -ow (Yellow), and -y (Happy), or with tense vowels in their final syllables (Polite, Profound, Sincere, obscure) generally have inflectional forms.

b. Otherwise, lexemes of two or more syllables (Active, Awful, Intelligent, abrupt, exact) generally have periphrastic forms.

8.1. Lexical redundancy rules

What is at issue here is the distribution of the paradigm feature CLASS for As in the English lexicon. I have already argued (in Section 6.3) that some derivational rules predict default values of CLASS on their output lexemes; but such generalizations by no means cover the data hinted at in (4), (48), and (49), which suggest that the default value of CLASS for an A lexeme can sometimes be predicted in part from the phonology of its stem, as in (50).

(50) Position XIV:

There can be principles making default predictions about certain properties of a lexeme on the basis of other of its properties; among these are principles making default predictions about purely morphological properties, like paradigm class, on the basis of phonological properties of stems.

I am not prepared to make a full inventory of the 'lexical redundancy rules' that relate A stem phonology to values of CLASS in (any variety of) English. It is enough to observe that there are some very good default predictions. For instance, ADJs with monosyllabic stems are mostly CLASS:YES, a prediction that is overridden by a stronger principle that ADJs zero-derived from V[PAST-PARTICIPLE] are CLASS:NO, as in (51a), and is frustrated for lexemes belonging to formal style or technical registers, like APT, and for a handful of others, like WRONG. And ADJs with stems of more than two syllables – even those, like Fatherly, Masterly, and Lawyerly, that would be slated for inflectibility as a consequence of the derivational rule describing them – are uniformly CLASS:NO, as in (51b), a prediction that is overridden only (for ADJs like Unhappy and Unlikely) by the even stronger principle that CLASS value is preserved through prefixal derivation.
(51)  a. *scareder, *pisseder 'more angry'
    b. *fatherlier, *masterlier, *lawyerlier

The point would not be of much consequence if it had not been for Pullum and Zwicky's (1984) claim that such lexical redundancy rules allow for a breach of a fundamental autonomy principle, in (52), that goes hand in hand with (32); this is the Principle of Phonology-Free Syntax of Zwicky (1969) and Zwicky and Pullum (1986a). Pullum and Zwicky (1984) consequently maintain that phonology is in fact irrelevant to the values of CLASS, which they do by observing that the putative lexical redundancy rules are riddled with exceptions.

(52) Position XV:
Syntactic rules have no access to the phonological properties of the lexemes instantiated by the synwords whose distribution these rules describe.

But the properties these lexical redundancy rules predict from stem phonology are purely morphological (predicting whether a lexeme is in a paradigm class), not syntactic. So long as our framework distinguishes different types of properties and different components of grammar, we can constrain the way rules in particular components can make reference to these properties, and so can enforce the component-autonomy positions in (33), (34), and (52). The crucial point is that the lexical redundancy rules at issue predict a property like CLASS:YES, which is relevant only for morphological rules, not a property like INFLECTED COMPARATIVE, which (functioning as a pointer to a specific syntactic rule) is relevant only for syntactic rules.

I will assume, in fact, that to each syntactic rule there corresponds a 'construction property', which serves as a pointer to that rule. A syntactic rule invokes other syntactic rules, as (47) permits, by mentioning their construction properties. We might then think of a construction property as belonging to the construct serving as the domain for its rule — to AP for INFLECTED COMPARATIVE and PERIPHRASTIC COMPARATIVE, to VP for the English PASSIVE, to S for the English SUBJECT-AUXILIARY INVERSION, and so on. Even if we do this, however, properties like INFLECTED COMPARATIVE, PASSIVE, and SUBJECT-AUXILIARY INVERSION will always belong to complex constructs, and never to minimal synwords, nor (by extension) to the lexemes such synwords instantiate. That is, the autonomy of syntax and morphology is enforced in part by the assumption in (53).

(53) Position XVI:
Construction properties are purely syntactic; they can be mentioned by syntactic rules, but not by morphological rules.
8.2. Some subtleties.

If we could predict INFLECTED COMPARATIVE versus PERIPHRASTIC COMPARATIVE from phonological properties of stems, then indeed the autonomy principle in (52) would be subverted. But so long as morphology and syntax are distinguished – so that CLASS is governed by one sort of regularity and INFLECTED COMPARATIVE by another (as (53) requires), with their joint effect following from the requirement that wellformed expressions must exhibit all relevant regularities of both types – lexical redundancy rules predicting paradigm class from stem phonology (and many other types of lexical redundancy rules as well) are theoretically innocuous.

Having said that, I must point out an apparent conditioning of syntax by phonology is possible. To see how this could come about, note first that to a syntactic rule there can correspond not only a construction property (which is purely syntactic), but also one or more syntactic subcategories, as in (54): for SUBJECT-AUXILIARY INVERSION, the subcategory induced by the rule is the set of invertible Vs; for PASSIVE, it is the set of head V lexemes (the passivizable Vs), which the rule requires to have the morphosyntactic property PASTPARTICIPLE; for WHQ, it is the set of ('WH') N lexemes, at least one of which is required by the rule to occur within a clause-initial phrase. Because such subcategories are sets of lexemes, subcategory membership is a property of lexemes, and consequently it is a property that can be mentioned in lexical redundancy rules.

(54) Position XVII:
To each syntactic rule $R$ that mentions a lexical (that is, word-rank, or zero-bar) category $C$ in some position $P$, there is a subcategory $C_{R,P}$, comprising those members of $C$ privileged to occur in $P$.

If subcategory membership can figure in lexical redundancy rules, we might expect there to be lexical redundancy rules that predict subcategory membership from phonological properties of lexemes. If there are lexical redundancy rules of the ‘phonology implies subcategory’ variety, they could yield an effect that would look at first glance like phonology in syntax, since the class of lexemes appearing in certain positions in certain constructions would be predictable in part from the phonology of those lexemes. But as Zwicky and Pullum (1986b:9-7-8) observe, it would be no such thing, since the conditions would involve the phonological properties of lexemes, not of synwords within expressions; no syntactic rule would be constrained by a phonological condition. The basic lesson here is that the component-autonomy assumptions I have been discussing are all constraints on rules of various types, not directly on the expressions described by those rules.
Still, some caution about such lexical redundancy rules is in order – since, although it seems to be widely accepted that there are some, the standard examples dissolve under close inspection. See Zwicky and Pullum (1986b) for critical discussion of the claims that number of syllables and stress pattern predict membership in the subcategory of ditransitive Vs for English (the contrast in (55a)) and that these same phonological properties predict membership in the subcategory of particle-taking Vs (the contrast in (55b)). Credible lexical redundancy rules involving phonology as the determining factor are all of one type: phonological properties predicting purely morphological ones. There may well be a variety of types of lexical redundancy rules in which phonology is the determined factor (with phonological properties predicted from category, subcategory, or purely morphological properties), but the reverse determination is remarkably poorly attested, except when purely morphological properties are predicted. With some hesitation, I elevate this observation to a theoretical proposal in (56).

(55) a. GIVE Lee money versus *DONATE Lee money  
b. MIX up versus *COMBINE up

(56) Position XVIII:  
If the determining properties in a lexical redundancy rule are phonological, then the determined properties are purely morphological.

For INFLECTED COMPARATIVE and INFLECTED SUPERLATIVE, one might have entertained a lexical redundancy rule analysis in which it is subcategory membership, rather than paradigm class membership, that is predicted from the phonology of lexemes – in which the ungrammaticality of (57) is attributed to the failure of FLAGRANT to belong to the subcategory of head As in INFLECTED COMPARATIVE, rather than to its failure to inflect. Position XVIII rules out such an analysis.

(57) *flagrant er than you

There is some reason to think that this is the right move for INFLECTED COMPARATIVE and INFLECTED SUPERLATIVE. In particular, if subcategory membership is what is at issue, it would be a complete accident that two different rules, INFLECTED COMPARATIVE and INFLECTED SUPERLATIVE, exhibit the very same phonological conditioning. But failure to inflect is a very common characteristic of special paradigm classes in the world's languages, so that it is no surprise that the class of As lacking a [+COMP] form is essentially identical to the class lacking a [+SUP] form.

More conclusive evidence bearing on the choice between a subcategory analysis and a defective-paradigm analysis seems not to be available in English.
Consider how this choice is made in other circumstances (in particular, when phonology is not an issue). Consider, for instance, how we decide whether (58a) is bad because RESEMBLE does not belong to the subcategory of head Vs for PASSIVE, or whether it is bad because RESEMBLE lacks the relevant, PASTPARTICIPLE, form. The subcategory analysis is clearly the correct one, since RESEMBLE does have a PASTPARTICIPLE form, which occurs in the PERFECT rather than the PASSIVE construction, as in (58b). When the ungrammaticality is associated with one construction only, we opt for a subcategory analysis; when the ungrammaticality extends across two or more distinct constructions involving the same form, we opt for a defective-paradigm analysis.

(58)  a. *They are resembled by their twins.
      b. They must have resembled their twins.

What we need for INFLECTED COMPARATIVE and INFLECTED SUPERLATIVE, then, are other syntactic rules calling for [+COMP] and [+SUP] forms. Unfortunately, I know of no such rules. There are some idioms involving [+COMP] forms – the paired comparative pattern in (59a), discussed by Fillmore (1987:164-6), and another pattern involving ALL THE, as in (59b) – but these idioms do not bear on the matter, since they merely incorporate the constructions realizing [+COMP] on APs, rather than constituting a fresh use of [+COMP].

(59)  a. The bigger they come, the harder they fall.
      b. It was all the prettier for having been painted by a child.

9. CONCLUSION

I have now demonstrated that an analysis of *quicklier is available that is congruent with all eighteen of the theoretical positions enumerated above. The framework in which this analysis has been sketched distinguishes derivational rules, inflectional rules, and lexical redundancy rules within morphology; distinguishes syntax, morphology, and phonology, treating all of these (sub)components as autonomous from one another to a considerable degree; and adopts a static-condition rather than derivational view of both syntactic and morphological rules.
NOTES

* Earlier versions of this paper were presented at SUNY Buffalo on 3 November 1988 (my thanks to members of this audience, in particular to Joan Bybee and Don Churma, for their comments) and at the annual meeting of the Linguistic Society of America in New Orleans on 30 December 1988. The latter version appeared in the Ohio State University Working Papers in Linguistics 37 (1989). I am indebted to Mark Aronoff and to three anonymous readers for the Yearbook of Morphology for their comments on a penultimate draft of the paper. This is the version of 21 May 1989.

1. Throughout this paper, references to lexemes are in upper-case italics, references to all sorts of linguistic expressions (including the inflectional forms of lexemes) in lower-case italics.

2. Since the facts about the superlative and the comparative expressions are almost entirely the same, I will use just one of them — namely the comparatives — as the basis for my discussion.

3. Aronoff notes that the rule applies before -est as well, so that it 'would take place before a class of morphemes rather than before a single morpheme' (p.93). This degree of generality presumably adds to its plausibility.


5. Investigators in this framework usually refer to it as 'lexical' morphology and phonology, a name that distinguishes phonology within lexemes from phonology within phrases but fails to suggest what is characteristic about the framework's approach to morphology, namely the positing of a set of levels, strata, or layers of structure within lexemes.

6. We cannot posit an implicational rule requiring that any category with the features [A, +COMP] has the feature [-ADV] as well, because this would say that all comparatives were ADJs and hence that ADVs had no comparatives at all.

7. There are specialized uses for both sooner (WOULD SOONER, parallel to WOULD RATHER, as in I'd sooner swim in jello than eat sushi) and soonest ('immediately', as in Send widgets soonest!), but the forms at issue are the ordinary comparative and superlative, as in (10).

8. Not all of the items listed in (11) are acceptable as ADVs for all speakers of English in all styles. FAST is (so far as I know), but QUICK is not. The point at issue is not which items happen to be on the list for a particular speaker, but the fact that there is such a list at all.

9. The discussion I give here can then be translated into a similar discussion for any other syntactic override/default or invoking/invoked relationship of the reader's choice.

10. Other ADJs ending in -ly — including those like FRIENDLY and KINDLY for which the -ly is predicted by a derivational rule, and those like SILLY and SPRIGHTLY for which it is not — are awkward as inputs to DI. As Thurber (1931:151) puts it, 'You can say "he plays lovelily," but even though the word is perfectly proper, it won't get you anywhere. You might just get by with it at a concert; but try shouting it at a ball game.' Though awkward, FRIENDLY, SILLY, and many other 'lily words' are attested; *DAILY is simply impossible.

11. For me it is possible, though awkward, to conjoin phrases containing ADJs and ADVPs of similar form: I went on to the next course, but it was neither much rice nor much tastier; I'm unsettled by this group, since they are both more linguists and more talkative than I had expected; I choose this group, since they are the most linguists and the most talkative. This possibility suggests that MUCH, MORE, and MOST might simply be As, neutral as between [-ADV] and [+ADV], rather than representing homophonous (but related) ADJ-ADV pairs. For speakers who reject such examples, there is presumably no reason to entertain the neutral-category analysis. But there is evidence against the neutral-category analysis even for speakers like me, since it is utterly impossible to treat the parallel occurrences of MUCH, MORE, and MOST in such examples as identical for the purposes of reduced conjunction: *But it was neither much rice nor tastier (in the intended sense), *They are both more linguists and talkative than I had expected, *They are the most linguists and talkative (again, in the intended sense).

12. All I claim in (23) is that English has at least one rule zero-deriving Ns from Vs, at least one zero-deriving Vs from Ns, and at least one zero-deriving Ns from As. In each case, the language
might have only one, or it might have two, or ten, or twenty. That is, I take no position here as to whether (23b), for instance, exemplifies one of many N-to-V conversion rules, or whether (as suggested by Clark and Clark (1979) and Aronoff (1980)) there is only a single such rule, with diverse semantic/pragmatic effects.

13. Not everyone who espouses the general 'syntax of words' view adheres to universal endocentricity in morphology. See Williams (1981:257), who admits 'nonbranching headless' – that is, zero-derived exocentric – morphological constructions.

14. There are only a few works that attempt both to cover a wide variety of English data and to achieve a reasonable degree of formalization: for comparatives, Bresnan (1973), Gazdar (1981), Hellan (1981), Pinkham (1982); for superlatives, Ross (1964). A full account of these phenomena must also cover the subordinate degree expressions with TOO (too big for me to lift), ENOUGH (big enough for me to see), SO (so big that I couldn't lift it), and AS (as big as anyone I've ever seen), all involving the [-EXTENT] form of an A.

15. Some speakers accept nested (nonredundant) comparison, as in This sauce is much more tastier than the last sauce than we could have expected 'The degree to which this sauce is tastier than the last sauce is much greater than we could have expected'. I will suppose that such examples are grammatical, though since they are very difficult to process and since they express very convoluted thoughts, they are awkward at best. It is hard to imagine how they could be prohibited in any but an ad hoc fashion, given the occurrence of sequences like the following: How much tastier than the last sauce is this sauce? Much more than we could have expected.

16. Or to a specified argument of that head or to an edge, although these possibilities are not at issue here.

17. Aronoff attributes to Alan Prince the observation 'that [what is in Aronoff's terms] the truncation is restricted syntactically' (1976:93), with only the periphrastic forms occurring before ADJ.

18. They add the hedge, 'But this is a description of what usually happens, not of what must happen. Mark Twain wrote: the confoundedest, brazenest, ingeniousest piece of fraud.'

19. As they are usually referred to, Zwicky and Pullum (1986a:81) suggest 'lexical implication principles' as a more appropriate designation.

20. These subcategories are not, of course, random assortments of lexemes, any more than categories like N and ADJ are. For each $C_R P$ there is a prototypical semantics, inferrable from the role that $P$ plays in the compositional semantic principle associated with $R$.

21. It is also true that the conditions are only defaults, and that they apply only to lexemes in certain positions within constructions, these positions being predictable from the form of the relevant rules. As a result there are many imaginable phonological constraints whose effect cannot be achieved even via the mediation of lexical redundancy rules: a hypothetical rule licensing a clause-initial ADVP only if its first synword begins with (or does not begin with) a labial consonant, and the like.

REFERENCES


