



## Architecture and blocking

David Embick and Alec Marantz  
University of Pennsylvania and New York University

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**ABSTRACT:** We discuss different theoretical approaches to stating *blocking effects*, with particular emphasis on cases in which **words appear to block phrases** (and perhaps vice versa). All of these approaches share at least one intuition, the idea that sets of syntactic and semantic features create a range of possible “cells” or slots in which particular items can appear, and that blocking occurs when one such cell is occupied by one form as opposed to another. Beyond these similarities, there are **two primary dimensions along which accounts of blocking differ**: (1) the size of the objects that *compete* with one another (morphemes, words, phrases, sentences); and (2) whether or not ungrammatical forms are taken into consideration in determining the correct output (relatedly, whether otherwise well-formed objects are marked ungrammatical by competition). We argue that **blocking** in the sense of a competition for the expression of syntactic or semantic features is limited to the insertion of the phonological exponents of such features (the *Vocabulary Items* of Distributed Morphology) **at terminal nodes** from the syntax. There is thus **no blocking at the word level or above**, and no competition between grammatical and ungrammatical structures. The architectural significance of these points is emphasized throughout the discussion.

KEYWORDS: architecture, blocking, competition, Distributed Morphology

### 1 Introduction

Our intuitions about blocking are driven by certain canonical cases emphasized in the linguistic literature. For example, a prevailing intuition is that the “irregular” form *gave* blocks the otherwise expected “regular” *gived* as the past tense of *give*. This intuitive notion of blocking evokes the cells of a paradigm structure: in a list or table of inflected forms of the verb whose stem is *give*, there exists a slot for the past tense of the verb. If this slot is filled by a memorized form, then the word formed by the regular past tense “rule” of adding *-(e)d* is blocked from filling this slot by the memorized form. The intuitive notion of blocking is illustrated in (1), which shows **paradigmatic cells or slots** and their contents:

(1) Slots

| Lexemes | Present     | 3s    | Past        |
|---------|-------------|-------|-------------|
| WALK    | walk        | walks | walked      |
| GIVE    | <b>give</b> | gives | <b>gave</b> |

In this paper, we will support the view that blocking as captured by the intuitive description that *gave* blocks *gived* is not part of the grammatical system of language. Crucially, the intuitive notion of blocking, the basis for a set of formal proposals in the literature that have become standard, relies on two assumptions that we examine in detail here. First, the standard approach assumes that blocking involves competition at the level of the word, or perhaps at the level of larger objects as well (phrases, sentences). Second, it is assumed that blocking involves consideration of “ill-formed” words like *gived* (or ill-formed phrases/clauses, for some theories). These assumptions define a range of competition-based approaches to blocking effects that hold that the existence of some irregular or memorized forms renders certain other forms deviant, even though the forms in question are not problematic as far as independent principles of the grammar are concerned. The losers of the competition are marked deviant solely because some “listed” or “better” way of expressing that meaning is found in the language.

We argue for a very different perspective on these matters.

Generalizing, the two components of the standard approach to blocking effects center the issues on two questions that motivate our investigation in this paper:

**Question 1 (“Locality of Competition Question”)** Is the computation of morphophonology local to the terminal nodes from the syntax, or more global, at the level of the phrase or sentence?

**Question 2 (“Grammaticality Question”)** Does the grammar involve comparison of two or more otherwise grammatical expressions (i.e., expressions that would be fine connections between sound and meaning, if they do not lose the competition to a “better” expression)?

Our answers to these questions are as follows:

1. Competition in the relevant sense is limited to the level of the morpheme: in the model that we elaborate below, this amounts to competition between Vocabulary Items, for insertion into terminal nodes in a syntactic structure. In the example of *give* and *gave*, the zero allomorph of the past tense node T[past] competes with the regular *-(e)d* allomorph for realization of the past tense terminal node from the syntax and wins in the context of *give* (but not in the context of e.g. *walk*); a morphophonological *Readjustment Rule* changes the phonology of *give* to *gave* in the context of the past tense morpheme. No larger objects— words, phrases, clauses— enter into competition.
2. The change in perspective involved in this approach to blocking has consequences for the treatment of ungrammatical forms. From the point of view of the grammar, *\*gived* is ill-formed because it will not be part of the phonological form of a grammatical sentence; i.e., it is not generated by the grammar. Thus what is called “blocking” in the literature does not involve consideration of forms of a word rendered ungrammatical via competition (as it would if *\*gived* were marked ungrammatical by virtue of losing the competition with *gave*). Rather, blocking involves the interaction of stored information about morphemes and the syntactic and phonological systems that build forms (and do not, crucially, yield *\*gived*).

Much of the discussion of this paper centers on the analysis of blocking effects within Distributed Morphology, and on the examination of a set of alternative approaches to blocking that make different predictions about the range of cross-linguistic variation one should observe. As indicated in the questions posed above, a crucial point of difference in accounts of blocking is the locality of interactions between morphology and syntax. The centrality of questions of locality in

this domain has a history that connects these questions with questions of architectural significance. Aronoff's (1976) groundbreaking treatment of blocking is based on the idea that blocking effects involve listedness or irregularity: "lexical" properties. In line with lexicalist assumptions about the division of labor in the grammar, this means that blocking effects are expected to be found in the lexicon, i.e. in the domain of (certain types of) words. Poser (1992) directed the attention of the field to cases of what looks like blocking in which the emphasis is on phrasal and single word expression of the same meanings. Employing one of Poser's examples, *if a phrase like more smart is blocked by a word like smarter* in the same way that *gave* blocks *gived*, then it is necessary to *extend the competitors relevant to blocking "out of the lexicon"* (this is in fact precisely the point that Poser raises).

For a theory like Distributed Morphology, in which all word formation is syntactic, the interaction of word formation and phrasal syntax is in some sense unsurprising. *A particular syntactic configuration might yield either a phrasal or a single word expression, depending on conditions governing the particular rules of syntactic affixation that might apply.* For example, a condition limiting the merger of the comparative head to adjectives of a particular phonological shape would yield a single word like *smarter* or *taller* when the rule applies, and a phrasal expression like *more intelligent* when the rule does not apply. Cases of word/phrase alternation are simply a subcase of syntactic affixation in which the rule that affixes one piece to another is "partial" in some sense. As far as the grammar is concerned, a single set of mechanisms responsible for affixation in syntactic structures is all that is required; there is no need to implement blocking or competition. For theories that adopt blocking– competition between expressions– as a mechanism in grammar, on the other hand, cases of word/phrase "Poser Blocking" require an extension of blocking beyond word-word comparisons and also beyond any notion that only "listed" words block out words or phrases that are produced by regular processes (since, for example, comparatives like *smarter* are regular and need not be listed, but nevertheless appear to block phrases like *more smart*).

In asking whether there is competition in word/phrase interactions, we also address the question of whether or not there is evidence for word/word blocking in the first place. On our view, there is no fundamental architectural distinction between word/word and word/phrase (or phrase/phrase etc.) interactions. Thus rather than "extending the lexicon" in the manner associated with Poser Blocking, our approach holds that *there are explanations for all of the relevant interactions that do not require blocking, and that, moreover, the explanations are syntactic in nature.* Thus part of the shift in perspective that comes from the theory that we put forth here involves the kinds of objects that have to be considered in accounting for blocking effects. We demonstrate below that even "canonical" cases of blocking– i.e. those that appear to involve only words within a lexicon– implicate comparisons between phrasal and single word expressions. Our initial comments above illustrate intuitions about blocking with reference to the relation between *gave* and *gived* for the past tense of *give*. Consider now that *did...give*, with Tense and the verb expressed in two separate words, beats out both *gave* and *gived* as the past tense of *give* in the presence of negation (*didn't give*, *\*gaven't*) or in questions or emphatic contexts (*You did give him the paper, didn't you?*). This is an obvious and extensively discussed facet of English clausal syntax, but the importance of observations of this type for architectural matters has not been fully appreciated in the literature on blocking (but cf. the discussion of Andrews 1990 below). There is no escaping syntax in the discussion of blocking, and *considerations of economy* of expression should be as relevant at the level of the phrase as the level of the word if these considerations drive blocking.

The importance of clausal syntax for blocking can be acknowledged both in local (node-only) theories of competition like ours, and in theories that have competition extended to larger objects.

The question then is which approach to grammar makes the correct predictions about the empirical facts concerning blocking. The type of phenomena usually described as involving blocking, particularly Poser Blocking, provides an empirical base to decide these issues. When the approaches to blocking involving comparison between otherwise grammatical expressions are made explicit, they all necessarily involve global competitions and they appear to make the wrong predictions about the range of blocking phenomena observed. An alternative architecture of the grammar, that of the Minimalist Program as instantiated in Distributed Morphology, fares better in these cases precisely because it limits competition to allomorphy and limits morphophonological computation to the individual terminal node in its syntactic environment.

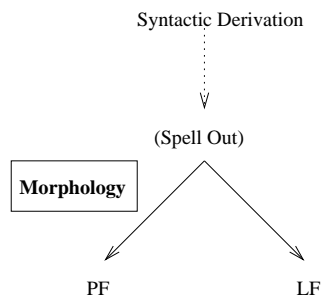
In §2 of this paper we outline Distributed Morphology, and what it has to say about blocking effects, as a preliminary to the discussion of “standard blocking” in §3. Addressing some of the standard cases of blocking from the literature such as the relationship between *glory* and \**gloriosity*, we show that there is no clear evidence for word/word blocking. In §4 we move on to the discussion of word/phrase interactions of the type associated with Poser Blocking. We show that a theory with global (clause/clause) competition along the lines of Bresnan (2001) makes incorrect predictions about the relevant interactions. Similarly, theories that implement Poser Blocking with words beating phrases under particular circumstances are shown to be inadequate. The generative treatment within Distributed Morphology is shown to make the correct predictions. We discuss some implications of our results in §5.

## 2 Distributed Morphology

### 2.1 Basics of Distributed Morphology

Distributed Morphology is a syntactic, piece-based, realizational approach to morphology in which there is at least some *late insertion* of phonological material into terminal nodes. The nodes are the primitives of syntactic derivations; many “morphological” operations are part of the PF component of the grammar:

#### (2) The Grammar



The nodes that are manipulated in syntactic derivations are of two types, the *functional morphemes* and the *Roots*:

#### (3) Terminals

- a. **Functional Morphemes:** These are composed exclusively of non-phonetic features, such as [past] or [pl], or the feature (or features) that make up the determiner node D of the English definite article *the*.

- b. **Roots:** These make up the open-class or ‘lexical’ vocabulary. They include items such as  $\sqrt{\text{CAT}}$ ,  $\sqrt{\text{OX}}$ , or  $\sqrt{\text{SIT}}$ .

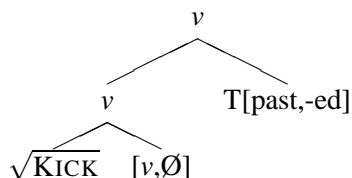
The *functional morphemes* are functional categories in the sense familiar from syntactic theory. In the PF component of the grammar, these morphemes receive phonological representations in the process of Vocabulary Insertion (VI). This process involves Vocabulary Items like those in (4), which spell out the past tense node T[past] in English; these items compete according to specificity, so that the most highly specified wins. When two Vocabulary Items tie on measures of specificity, as is the case in the irregular VIs with *-t* and *-Ø* in (4), either there is no ordering, a possibility discussed in §3.1 below, or the Items are extrinsically ordered:

- (4) Vocabulary Items for Past Tense (T[past])

|         |                   |                |   |
|---------|-------------------|----------------|---|
| T[past] | $\leftrightarrow$ | <i>-t</i> /___ | { $\sqrt{\text{LEAVE}}$ , $\sqrt{\text{BEND}}$ , ...} |
| T[past] | $\leftrightarrow$ | <i>-Ø</i> /___ | { $\sqrt{\text{HIT}}$ , $\sqrt{\text{QUIT}}$ , ...}   |
| T[past] | $\leftrightarrow$ | <i>-ed</i>     |   |

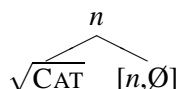
In displaying the effects of Vocabulary Insertion, we represent the node in question with its features/label, as well as the phonological exponent associated with the VI. Thus, for example, the verb *kicked*:

- (5) *kicked*



As noted above, we take the Roots to be category-neutral. The members of the typical “open class” categories— nouns, verbs, etc.— are Roots combined with a category-defining functional head *n*, *v*, etc. (Marantz 1997,2000, Arad 2005 among others). Thus, for example, the noun *cat* is complex, consisting of a Root and a category-defining *n*; the latter has the phonological form *-Ø* for this particular Root:

- (6) The Root  $\sqrt{\text{CAT}}$  as ‘Noun’



We assume that all Roots must combine with a category-defining functional head:

- (7) CATEGORIZATION ASSUMPTION: Roots cannot appear (cannot be pronounced or interpreted) without being *categorized*; Roots are categorized by merging syntactically with category-defining functional heads. If all category-defining heads are phase heads in Chomsky’s sense— that is, if they are heads that initiate spell-out— the categorization assumption would follow from the general architecture of the grammar (see Marantz 2007).

Concerning the functional heads themselves, we assume that there exist different types of  $n$ ,  $v$ , etc., distinguished by virtue of their feature content (although we will not provide a theory of such features here).<sup>1</sup>

As we discuss extensively below, *competition* in this approach is restricted to Vocabulary Insertion, which targets individual nodes in the structure.

## 2.2 “Wordhood” and Structure

Much of the discussion below concentrates on cases of so-called Poser Blocking, in which there are apparent interactions between “words” (e.g. *smarter*, *\*intelligenter*) and phrases (*\*more smart*, *more intelligent*). In traditional terms, these are alternations between synthetic “one word” forms and analytic (or periphrastic) “two word” forms.

The theory of Distributed Morphology does not have a primitive notion of “word” directly relevant to cases of Poser Blocking (the phonological word may or may not play a role in the operation of phonological rules or constraints). Instead, the notions relevant to analytic versus synthetic expression are structural, and involve how the heads in a syntactic structure are packaged for phonological interpretation. We assume that the theory of constituent structure makes clear the notions “head”, “complex head”, etc.. According to the structural view envisioned here, multiple terminals that are packaged as one complex head by the syntax or PF are “one word” in an informal way of speaking, whereas terminal nodes realized as separate heads are, in the same informal way of speaking, “two words”. This is illustrated for two heads  $X$ ,  $Y$  in (8) (analytic) and (9) (synthetic), where we take (9) to be the output of head movement:

- (8) Analytic “two words”      (9) Synthetic “one word”



There are other ways that a complex head could be formed in addition to head movement; these are discussed below. The important point is that the difference between the “one word” and “two word” types of expression has to do with the syntactic structure and, in particular, how the heads in the structure are packaged.

## 2.3 Notions Relevant for Blocking Effects

Many of the phenomena that fall under the heading of *blocking effects* are accounted for by mechanisms included in Distributed Morphology, although in ways that do not necessarily implicate competition-based blocking. As a way of introducing some of the basic points to be advanced later in this paper, we present an overview of the relevant mechanisms and their effects here.

The process of Vocabulary Insertion (VI) assigns phonological content to syntactic nodes. We assume that each node receives a single phonological exponent in this process:

- (10) SINGLE VI ASSUMPTION: One exponent per node; i.e., VI only applies once to a node.

<sup>1</sup>Some literature exists on different  $v$  heads and their feature content, e.g. Harley (1995) and subsequent work in this vein.

The Vocabulary Items like those in (4) above are thus competing with one another, and when one wins this competition, the winner prevents others from doing so. So, for example, when *-t* appears as T[past] in the context of the Root  $\sqrt{\text{BEND}}$ , it is at the expense of the default case, which has the exponent *-ed*.

It might be said in this case that *-t blocks -ed* (more precisely, that the Vocabulary Item with *-t* as its exponent blocks the Vocabulary Item with *-ed* as its exponent). It is crucial to note here, however, that the blocking effect is limited to the phonology of a single node; it is not the case that one word blocks another word: *bent* does not block *bended*. The ungrammatical forms— in this example, those with “incorrect” allomorphs of T[past] like *bend-ed*— are never generated or considered in the derivation of *bent*.

Beyond the effects of Vocabulary Insertion at a single node, there are other ways in which conceivable forms are excluded from the language on this approach. That is, in considering the operation of the grammar as a whole, we as linguists are able to distinguish different ways in which an ungrammatical form fails to occur, of which allomorphic “blocking” of the type just described is one possibility. Importantly, our metalinguistic analysis of the ungrammatical forms does not imply that these forms play any role in the speaker’s competence.

Including allomorphy of a single node, some of the relevant cases of how things can fail to exist, chosen with reference to our discussion below, are as follows:

- (11) a. **Allomorphically:** The structure is well-formed syntacticosemantically, but the morphophonology of the language simply does not produce the pronunciation under consideration.

*Example:* [bend T[past]] is well formed, but is pronounced *bent*, not *bended*.

- b. **Syntactically/Semantically:** There are two subcases— one in which a structure is never possible, and one in which the combination of Root and functional structure is restricted but possible in limited cases:

- i. *Example 1:* The “potential” head (adjectival) *a* pronounced *-able* attaches outside of *v* but not outside of e.g. *n*. Thus *\*atrocitiable* is ungrammatical because the structure— Root merged with *n*, then [Root *n*] merged with potential *a*— cannot be derived in the first place.
- ii. *Example 2:* Some functional heads have a restricted distribution and only go with a limited set of Roots. For example, while feminine forms exist for certain nouns, such as *actress* or *lioness* next to *actor* and *lion*, these only exist for a handful of nouns (of the appropriate type; animate and so on). Thus one does not expect for any given noun, even of the appropriate semantic class like *jaguar*, that the syntax of “feminine noun” should be available for that noun. Nothing rules out the structure that would underlie *\*jaguaress* as a whole (since *lioness*, *tigress* etc. are possible); but at the same time there are substantial restrictions on the distribution of the relevant functional heads.<sup>2</sup>

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<sup>2</sup>There are some clarifications to be made about the “Root-specific” (selectional) effects identified in this classification. By assuming an approach in which Roots are category-neutral, we are not making the prediction that every Root should appear felicitously in every possible environment, e.g. in every different “lexical category” (cf. Borer 2004 for another conception). While a theory of Root/functional head combinations must be part of a comprehensive theory of competence, we cannot provide such a theory here. Any theory able to account for so-called “conversion”— the appearance of the same Root in multiple categories— faces the same issues as the present approach.

- c. **Combinatorics of Complex Head Formation:** Some process that creates a complex head may apply under restricted circumstances. When the process does not apply, there is no single “word” to consider.

*Example:* There is a rule that combines the degree element *Deg* and the adjective *smart* in a single complex head that is pronounced as *smart-er*. The rule that affixes *Deg* to adjectives does not apply in the case of the adjective *intelligent*. Thus the synthetic form *intelligent-er* is not created by the morphophonology; the only way of realizing the syntactic structure “comparative of *intelligent*” is with the analytic form *more intelligent*.<sup>3</sup>

The cases in (11) present a variety of ways in which an ungrammatical form can fail to be generated by the grammar. Crucially, for our purposes, none of these cases involves competition at the level of “words” or “phrases”. Instead, the grammatical forms are derived, and conceivable ungrammatical forms are not.

We take it that (11) clarifies what it means to say that the only type of competition that appears in this approach is at the level of the morpheme, where one VI can win over another (as in (11a)), and that there are many cases of non-occurrence of forms that do not result from competition.

### 3 Blocking

In the previous section we outlined a number of ways in which the basic architecture of Distributed Morphology derives effects sometimes associated with blocking. In this section we examine blocking directly, with reference to a number of specific proposals concerning such phenomena.

It is convenient to make reference to theories according to certain very general positions that they endorse. We take the “standard” approach to blocking to be as follows:

- (12) **STANDARD BLOCKING:** Some forms are ungrammatical only because other forms happen to exist and beat them; competition is at the level of the word/phrase/sentence.

Whenever we consider approaches in which one form is said to block another, the approaches are of this standard type. As a cover term, we refer to theories that have competition at the level of the word or above as **COMPETITION-BASED**:

- (13) **COMPETITION-BASED THEORIES:** Approaches in which the forms that compete for expression of meaning are words or phrases/sentences; i.e., theories that endorse **STANDARD BLOCKING**.

We reserve the term **POSER BLOCKING** for approaches that implement word/phrase interactions in terms of standard blocking:

- (14) **POSER BLOCKING:** Words beat phrases by standard blocking.

Our arguments about blocking and Poser Blocking in this section and §4 proceed through a few steps. For expository purposes, the following bullets outline the major points of the discussion to come:

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<sup>3</sup>Note that every theory of word formation has to say that there is a general rule of comparative formation, and that this rule does not apply to *intelligent*, because it only applies to words of a particular phonological shape. Thus in some sense every approach must hold that there is no word *intelligenter* to consider here, as we discuss further with reference to Kiparsky (2005) below in §4.5. Where we differ from other approaches is in holding that there is no *more smart* to consider (and block) either.



- Following a brief sketch of our take on derivational morphology (§3.1), the discussion of this section shows that there is no evidence in favor of competition-based theories even at the level of the “word” (the traditional domain of blocking). After paving the way with a discussion of “synonymy blocking” (§3.2), we examine standard cases of what is supposed to be word/word blocking, like *glory/gloriosity*, and show how the relevant patterns can be analyzed without such competition (§3.3-3.4). This of course leaves open the possibility that word/phrase interactions (Poser Blocking) are the only instances of standard blocking, motivating the discussion of §4.
- §4.1 outlines a generative approach to analytic/synthetic alternations (and “affixation” generally), centering on the primary assumption of such theories: namely, that rules apply when their structural descriptions are met. This paves the way for a comparison with competition-based theories.
- §4.2 demonstrates that theories that implement competition at the sentence level to accommodate blocking effects, such as Bresnan (2001) (and perhaps Kiparsky 2005), make incorrect predictions; thus there is no evidence for competition at this level.
- §4.3 shows that theories that implement Poser Blocking with a principle that words beat phrases under specific structural conditions make precise predictions about the configurations in which analytic/synthetic alternations could occur.
- §4.4 shows with reference to specific examples that the Poser Blocking approaches are unable to make the correct predictions about where words and phrases interact in the relevant sense. The generative approach, with syntactic structures and syntactic (or post-syntactic) movement processes, makes the correct predictions.
- §4.5 shows in addition that there are interesting ways in which the principle “prefer words over phrases” is problematic in the first place.

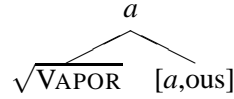
The syntactic approach within Distributed Morphology makes the correct predictions about the attested interactions, a point that is illustrated with reference to some key cases.

### 3.1 Derivational Morphology

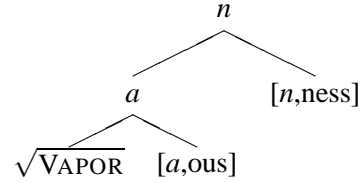
As noted in the preceding section, we assume a syntactic approach to derivational morphology in which category-neutral Roots combine with functional heads *n*, *v*, *a* (cf. Marantz 2007 for recent discussion). With *x* ranging over these heads, we use the term “Root *x*” to refer to a structure in which *x* is the element that categorizes the Root. Thus our example *cat* above in (6) is a *root nominal* (or *root nominalization*), *red* would be a *root adjective* (root and *a*), and so on.

In addition to attaching at the Root level, it is of course possible for the *x* heads to attach outside of other *x* heads. In such cases, we have true “category-changing” morphology. So, for example, we assume that root adjective *vaporous* can be nominalized by *n* to yield *vaporousness*:

(15) vaporous



(16) vaporousness



Schematically, we refer to Root-attached heads *x* as being in the *Inner Domain*; outside of other *x* heads, category-defining heads are in the *Outer Domain*. A significant set of generalizations that are captured in this approach hinge on differences between the Inner and Outer domains. These generalizations, which we assume in our analysis of blocking effects below, are summarized in (17):

(17) Generalizations

- a. **Allomorphy:** For Root-attached *x*, there may be special allomorphy, determined by properties of the Root. A head *x* in the Outer domain is not in a local relationship with the Root, and thus cannot have its allomorphy determined by the Root.<sup>4</sup>
- b. **Interpretation:** The combination of Root-attached *x* and the Root might yield a special interpretation. The heads *x* attached in the Outer domain yield predictable interpretations.

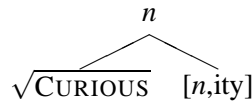
The workings of these assumptions can be illustrated with reference to the forms in (18), which also play a role in our analysis of blocking effects below:

(18) curious, curiosity  
generous, generosity  
verbose, verbosity

The first two are examples of what appear to be *ous* adjectives being nominalized with *-ity*; the third is an adjective ending in *-ose*.

In these cases, we propose an analysis in which *-ity* is in the Inner domain:

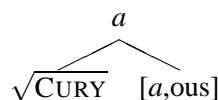
(19) curiosity



According to this analysis, the Root is  $\sqrt{\text{CURIOUS}}$ ; our position is that this treatment accounts for significant generalizations that are lost in alternative analyses. In particular, it might appear that it would be possible in principle to treat *curious* as containing the piece *-ous*, with the Root  $\sqrt{\text{CURY}}$  as a kind of *cran-morph*:

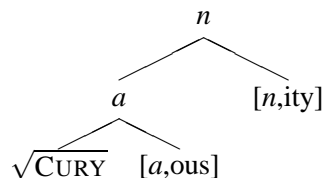
<sup>4</sup>Some cases of interest, where there appears to be sensitivity to the identity of the Root for insertion in an “Outer” domain, are discussed in Embick (2003).

(20) curious?



If (20) were the structure for *curious*, then *curiosity* would be a de-adjectival noun:

(21) curiosity?

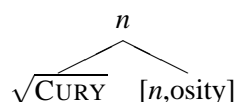


Given our assumptions in (17), (20) cannot be the structure for *curiosity*. There are two reasons for this. The first is that, as we discuss below, *n* is pronounced as *-ity* only when it appears in the context of particular elements, and these elements have to be listed. Since *[a,ous]*, which is visible to *n* in (21), is not on the list for *-ity* (see below), the *n* head could only be pronounced *-ity* if the Root  $\sqrt{\text{CURY}}$  were in a local relationship to *n*. This is disallowed by (17). Similarly, *curiosity* has an idiosyncratic interpretation (a *curiosity* can be an artefact of specific interest/strangeness). By (17), then, (21) is not a possibility.

Importantly, as we discuss below in §3.4.1, there are additional reasons to think that the analysis that takes *curiosity* to be a root nominal makes the correct predictions; see in particular the discussion of putative *doublings* below, where we show that the Root in *curious* in a structure like that in (21) yields *curiousness*.

Notice that it is also possible, given the pattern in (18) and our assumptions in (17), that there is a monomorphemic *-osity* that is Root-attached in the nominal forms:

(22) Alternative



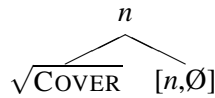
The adjectival forms, according to this view, would involve *-ous* or *-ose*, attached to bound Roots. The analysis in (22) would be compatible with (17); the question is whether there is an evidence in favor of this alternative as opposed to the one in (19). It might be possible to argue that there is a generalization within English according to which Roots that take an *a* head in *-ous* or *-ose* also form a nominal in *-osity*, and that this is stated more directly in the analysis in (22) than it is in (19).<sup>5</sup> While this is a possibility to be explored, we assume (19) in our discussion below, since the further differences are not essential to our discussion of blocking.

Before we address blocking, we wish to illustrate an additional point concerning Vocabulary Insertion in derivational morphology. As noted above, we assume that the *n*, *v*, *a* heads can be distinguished further in terms of their feature content. It seems that this is a necessary component of any theory with the general properties of the one supported in this paper.

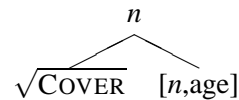
<sup>5</sup>Note that while *specious*, *precious*, and *impecunious* seem to support the generalization that adjectives with *-ous* take root nominals in *-osity*, other adjectives, e.g. *various*, *tenacious*, and *pious*, are counterexamples (cf. (34) below).

However, it is also important to note that in some cases it is not clear that differences in feature content are responsible for differences in form and interpretation. One set of cases in which these issues are highlighted involves instances in which the same Root surfaces in more than one root nominalization. So, for example, we assume that the single Root  $\sqrt{\text{COVER}}$  forms two different root nominals: *cover* and *coverage*:

(23) *cover*



(24) *coverage*



At this point the central question concerns the status of the  $n$  heads in these two trees: are they the same, or are they different? If we assume the latter— i.e., that there is some head  $n1$  in *cover*, and some head  $n2$  in *coverage*, then the differences in allomorphy and interpretation can be explained with reference to this difference. This could very well be the correct analysis in this particular case.

A second option is that there is one  $n$  in these two structures. In order for this analysis to work, we have to configure the VI process so that the same Root may appear on more than one list, as in (25):

(25) Vocabulary Items,  $n$  Inner Domain

$$\begin{array}{l} n \leftrightarrow -\emptyset/\text{LIST}_- \\ \text{LIST} = \sqrt{\text{CAT}}, \sqrt{\text{DOG}}, \sqrt{\text{COVER}}... \\ n \leftrightarrow -\text{age}/\text{LIST2}_- \\ \text{LIST2} = \sqrt{\text{MARRY}}, \sqrt{\text{BOND}}, \sqrt{\text{COVER}}... \end{array}$$

In (25), the Root  $\sqrt{\text{COVER}}$  appears on more than one list. If we treat VI in such a way that two VIs that are not related to one another by inclusion are not ordered, and therefore one cannot always take precedence over the other, then either could be inserted. Thus in a grammar containing (25) and the “non-ordering” assumption just mentioned, both *cover* and *coverage* could be derived.<sup>6</sup> In this scenario, there is part of the grammar in which *cover* and *coverage* are identical. The interpretive difference between these forms arise from the fact that they are used to refer to different parts of semantic space, perhaps in the way that *sofa* and *couch*, or, as we discuss below, *thief* and *stealer* are in competition at the level of use (not grammaticality).

While we will not investigate these different accounts further here, the connection with what it means to have competition for use provides a natural transition to our main topic of interest. Whatever the status of these different approaches to *cover* and *coverage*, this discussion leads us up to a question that is central to blocking: the difference between competition for *grammaticality* on the one hand, and competition for *use* on the other. This is seen clearly in a standard question for blocking theories, the question of lexical relatedness.

### 3.2 Competition, *Lexical Relatedness*, and *Synonymy Blocking*

One facet of blocking that must be defined at the outset concerns the scope of putative competitions. In particular, it must be asked what could potentially compete with what. Returning for expository

<sup>6</sup>We put aside the question of what would be involved in “choosing” the correct outcome in any particular instance of use.

purposes to our example of blocked *\*gived*, note that certain conditions must be present in order for a blocking relation between *\*gived* and *gave* to obtain. All accounts of blocking assume that the competing forms must “mean the same thing” in some sense. For most accounts, this entails that the competing forms must be seen as forms of the same Root, the property of *lexical relatedness*:

- (26) LEXICAL RELATEDNESS IN BLOCKING: Competing forms are forms of the same Root.

This of course raises issues for apparent cases of blocking brought up elsewhere in the literature, where the assumption (26) appears to be denied. To take a specific example that illustrates this point, it can be asked if *thief* could be said to block *stealer*, on the assumption that the latter is unacceptable in some sense. Since *thief* and *stealer* do not seem to share a Root, this blocking would seem to require equating the meaning of *thief* with that of “one who steals”—certainly a bleaching of what one would generally call the meaning of the word.<sup>7</sup>

In any case, there are treatments of blocking effects which extend the notion of Standard Blocking to the *thief/stealer* relationship (Giegerich 2001). Theories of this type warrant further discussion as a means of elaborating our stance. For convenience, we call approaches with competition between lexically unrelated items in this sense theories with *synonymy blocking*:

- (27) SYNONYMY BLOCKING: Competing forms simply have to “mean the same thing”; they do not have to share a Root.

There are some *prima facie* difficulties with this position. Given the various specialized uses of *thief* (cf. Fn.7), one would imagine that a more general *stealer* would have room to acquire non-*thief* meanings. So it is not entirely clear how the blocking relationship would actually work. In general, a notion of blocking based on “meaning” independent of “lexical relatedness” (built on the same Root) could only possibly account for the (non-overlapping) sharing of semantic space—the possible meanings of a form like *stealer*—not the ungrammaticality or nonexistence of a form.<sup>8</sup>

Marantz (2003) discusses some instances of putative synonymy blocking from the literature and points out that, in cases like *stealer*, the feeling of ill-formedness speakers have is arguably independent of the existence of single words like *thief*. Parallel forms, such as *breaker*, for someone that breaks things, share a similar status (i.e. are putatively deviant), although there is no “listed” form for someone that breaks things (something like *clumsy oaf*, *klutz*, or *butter fingers*). It seems clear that there is no obvious sense in which *breaker*’s deviance arises by virtue of some other existing word blocking it.

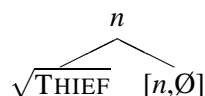
While it is thus unclear how a theory with SYNONYMY BLOCKING could connect the effects found with *stealer* and *breaker*, there is a systematic point covering these nominals that has nothing to do with blocking: transitive verbs of the semantic class including *steal* and *break* generally require direct objects, even in their agentive nominal form. So *base-stealer* is fine, and web research suggests *password-stealer*, *girlfriend-stealer*, *scene-stealer* and a host of others are in common use. The same is true of *breaker*, unsurprisingly (*rule-breaker*, *heart-breaker*, etc.).

These considerations, which implicate the type of Root involved as well as the structure(s) it appears in, require consideration of different aspects of the derivation of *stealer*. It must be asked in particular in which structure or structures this form is realized. For *thief*, we assume that the structure is that of a “noun”; i.e., it is a Root combined with an *n*, the latter with a null phonological exponent:

<sup>7</sup>I.e. *thief* in the normal sense is one who steals professionally or habitually, for example.

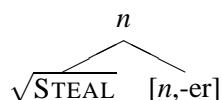
<sup>8</sup>Compare “pragmatic” theories of blocking, already criticized effectively in Poser (1992). Pragmatic approaches to blocking continue to be advanced—Williams (2004) is an example—without addressing Poser’s original arguments.

(28) thief

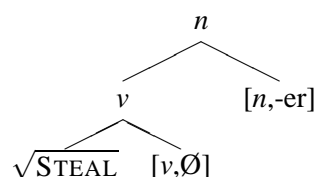


Given the theory of category determining morphology presented in Marantz (2000), there are at least two possibilities to consider for the analysis of *stealer*. One is identical to the structure in (28), where a nominalizing “little *n*” creates a noun from the Root  $\sqrt{\text{STEAL}}$ ; the other is a deverbal agentive *-er* nominal, in which a Root and a verbalizing head combine and are subsequently nominalized by an *n*. These two structures are as follows:

(29) Root Nominalization



(30) Deverbal agentive nominal



One may ask whether the existence of *thief* might lead speakers away from the analysis of *stealer* as a root nominalization (29). If the need arises for a word to describe someone that steals for a living, against the law, the existence of *thief* might make the creation of a novel root nominalization pronounced *stealer* unnecessary (i.e. superfluous given that the semantic space for which *stealer* would be used is already filled). That is, the kind of principle invoked by language acquisition specialists to explain why children spread the words they hear around semantic space, instead of assuming that every word spoken around a dog, say, means *dog* (*cutie*, *shaggy*, *tiny*), a “uniqueness” principle for sharing semantic space, might work against the root nominalization analysis of *stealer*. See, for example, the *Principle of Contrast*, discussed by Clark (1993) and others. It could be the case that what *stealer* in (29) could be used for depends to some extent on what other words happen to exist in the language. If *stealer* is used when *thief* exists, there might be strong motivation (“Contrast”) for the hearer to assume that *stealer* does not mean what *thief* means. In the absence of a clear use for the root nominalization in (29), the hearer might conclude that *stealer* is not a root nominalization.<sup>9</sup>

Thus (i) the pressure exerted by the existence of *thief* might make the analysis of *stealer* as a root nominalization unlikely, given its relation to the semantic space for which it could be used at the same time (cf. also Fn.10 for additional problems); and (ii) the deverbal agentive nominal analysis in (30) has problems as well, since the requirement that an object be present is not met. As a result, there is something odd about *stealer* in some contexts. Crucially, while there is potentially some sort of interaction between *thief* and hypothetical root nominal *stealer*, it is not competition for grammaticality. Rather, the effect has to do with what a root nominal *stealer* could be used for (in terms of semantic space) given that *thief* exists. Thus there is no blocking effect that determines what is grammatical and what is not; any effect of *thief* on *stealer* has to do with how objects that are generated by the grammar might be employed, not whether the object in question can be generated

<sup>9</sup> Although compare *robber*, *burglar*, etc.

What we find with *thief* and *stealer* contrasts with cases in which there is lexical relatedness. In the case of someone that cooks, for example, the root nominalization *cook* already exists, besides the more professional *chef*. So, in the theory under discussion here, *cook* could “block” *cooker*, but this is only a manner of speaking. In our view of competition at the morpheme level, all of the action occurs at the level of the morpheme, not the word. In this case, this means that the zero nominalizing suffix would win the competition for insertion over *-er* in the environment of the Root  $\sqrt{\text{COOK}}$ . What is really at issue, then, is the phonological form taken by the *n* head in (31), with reference to the Vocabulary Items in (32):<sup>11</sup>

$$\begin{array}{c} n \\ \swarrow \quad \searrow \\ \sqrt{\text{COOK}} \quad n \end{array}$$
$$\begin{array}{l} n \leftrightarrow -er/Y\_ \\ Y = \sqrt{\text{ROB}}... \\ n \leftrightarrow \emptyset/X\_ \\ X = \sqrt{\text{COOK}}... \end{array}$$

In the literature on blocking, the juxtaposition of an ill-formed word next to a word that intuitively would “mean the same thing” is often taken as sufficient to substantiate a blocking relation. The cases that we outlined in §2.3 illustrate a number of ways in which some form could fail to exist for reasons that have nothing to do with competition and blocking, as we illustrated for *stealer* above. Other cases of putative synonymy blocking from the literature can be analyzed in these terms as well. For example, Giegerich (2001) gives pairs like *\*horsess/mare* as cases of blocking. However, there is no reason to expect *horsess* for female horse independent of the existence or nonexistence of *mare*: forms like *\*turtless* are bad independent of any words we might know for female turtle (and sticking to the semantic domain of *lioness*, consider *leopardess* and *tigress* but *\*jaguaress*, *\*pantheress*; *leopardess* exists and *jaguaress* apparently does not, but not because there is some other word for female jaguar).

(33) There is no synonymy blocking.

<sup>10</sup>As far as the root nominal analysis goes, our considerations elsewhere might lead us to ask whether the grammar leads us to expect that a root nominalization with the allomorph *-er* of *n* is expected with  $\sqrt{\text{STEAL}}$  in the first place; see (11b-ii) above. The answer is probably negative, but the possibility nevertheless has to be considered.

<sup>12</sup>Putting aside the question of suppletion: there is an important parallel between *went*/\**goed* and *gave*/\**gived* that can only be captured by recognizing *wen-* (or *went*) as an allomorph of the head that is pronounced *go*. If *thief* were analyzed as an allomorph of *steal*, a blocking/competition analysis of a connection between *thief* and the root nominalization *stealer* (along the lines of *cook*-Ø versus *cook-er* above) might be attempted.

of blocking effects.

### 3.3 Blocking in Aronoff (1976)

While “synonymy blocking” can be dismissed in the manner outlined above, there remain cases in the literature involving what is claimed to be (i) blocking between whole words that mean the same thing and are built from the same Roots that (ii) do not yield to an analysis involving competition among allomorphs for realization of a functional head. Perhaps the most famous case, found in Aronoff’s work, involves the relation between “bare” (i.e. not overtly-affixed) nouns, adjectives formed from these nouns with the suffix *-ous*, and the possibility of further nominalization of the adjectives with *-ity* and *-ness*. The existence of forms such as *curiosity* and *viscosity* suggests that *-ity* can attach to adjectives in *-ous* (*curious*, *viscous*) and create abstract nominals meaning, among other things, possession of the quality of the adjective. The question then concerns cases in which this relation apparently does not hold for an *-ous* adjective; for instance, if *curious* goes to *curiosity*, why does *glorious* not go to *\*gloriosity*? Why, moreover, is the form *gloriousness* allowed, unlike *\*gloriosity*? As Aronoff (1976) explains in the first detailed discussion of these types of facts, no simple notion of blocking between words based on meaning will be able to account for *\*gloriosity*, since a consideration of the meanings of *-ity* and *-ness* would predict that *gloriousness* would mean what *gloriosity* would mean; thus *gloriousness* should have the same “blocked” status as *gloriosity*, contrary to fact. The analysis that Aronoff develops in response to this and some related observations involves components that figure in all subsequent discussion of blocking effects, as we discuss below.

Roughly speaking, Aronoff’s generalization about such examples says that if the *-ous* adjectival form decomposes into an independent noun (e.g., *glory*) and an affix *-ous*, then the *-ity* form is blocked. If, on the other hand, the *-ous* adjective cannot be decomposed in this way, then the *-osity* form is (potentially) grammatical. Thus the absence of *cury*, as a word, allows *curiosity*.

(34) *ous*/nominals/*ity*/*ness*; Aronoff (1976:44)

| <i>Xous</i> | <i>Nominal</i> | + <i>ity</i>   | # <i>ness</i>   |
|-------------|----------------|----------------|-----------------|
| various     | *              | variety        | variousness     |
| curious     | *              | curiosity      | curiousness     |
| glorious    | glory          | *gloriosity    | gloriousness    |
| furious     | fury           | *furiousity    | furiousness     |
| specious    | *              | speciosity     | speciousness    |
| precious    | *              | preciosity     | preciousness    |
| gracious    | grace          | *graciosity    | graciousness    |
| spacious    | space          | *spaciosity    | spaciousness    |
| tenacious   | *              | tenacity       | tenaciousness   |
| fallacious  | fallacy        | *fallacity     | fallaciousness  |
| acrimonious | acrimony       | *acrimoniosity | acrimoniousness |
| impecunious | *              | impecuniosity  | impecuniousness |
| laborious   | labor          | *laboriosity   | laboriousness   |
| bilious     | bile           | *biliosity     | bilousness      |
| pious       | *              | piety          | piousness       |

Aronoff attributes the difference between *-ity* and *-ness* to the regularity of *-ness* compared to



-ity. Since -ity forms are not entirely predictable, they must be listed when they do occur.<sup>13</sup> What “listing” means is that a slot represented as “Nominal” for the Root in question in (34) contains the output of the Word Formation Rule that assigns -ity. “Simple” nouns like *glory*, because their existence is not predictable, must be listed as well. Blocking then can occur between listed forms, so that e.g. *glory* blocks *gloriosity*; technically, what this means is that *glory* occupies a slot associated with this Root, so that slot cannot be occupied by an -ity-affixed form. From the point of view of listed lexical items, the “Nominal” and “+ity” columns of (34) constitute a single lexical slot, for which only one form should exist. At the same time that this blocking relationship obtains between listed forms, productive formations like nominal in #ness in (34) will not necessarily be blocked by words that mean the same thing, at least for this sort of derivational morphology.

In terms that we employed above in explaining the intuition behind blocking, it is important to note that this approach makes crucial reference to paradigmatic notions: *glory* occupies the listed spot that *gloriosity* would occupy if the latter were formed. Similarly, *curiosity* would block *cury* as a backformation, since *curiosity* is itself listed and occupies the slot.

There are four components of this treatment of blocking effects that are highly influential in subsequent analyses:

(35) Components of Aronoff’s Blocking

- a. PARADIGMATICITY: The blocking effect arises because each “lexical item” has associated with it a set of cells expressing different meanings for that lexical item. Each cell may be occupied by (at most) one phonological form.
- b. LEXICAL RELATEDNESS: The competition that results in blocking is between words that share the same Root.
- c. IRREGULARITY: Irregularity is crucial to blocking. Only elements that are irregular in some respect must be listed in the lexicon, i.e. must be recorded in the “paradigm slots” (“The words that must be listed are blocked, and those which must not be listed are not blocked” (1976:45)). Therefore blocking effects may obtain only between formations each of which is “irregular” or “unproductive”.
- d. WORDHOOD: The objects that are entered into paradigm slots– and which thus compete with one another by virtue of blocking one another– are *words*.

Our reexamination of “word/word” blocking centers on these points, and on how each point or the effects it is meant to cover are stated in a theory with different properties from Aronoff’s.

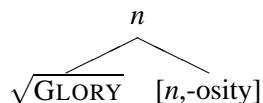
### 3.4 A Reexamination

Recall from our discussion of “synonymy blocking” above that the absence of certain forms in what appear to be blocking situations might actually be independent of any putative competition between the ungrammatical form and the grammatical form. In the case at hand, a similar approach must be examined as well. In line with the general architectural principles that underlie our approach, it must be asked if there is any reason to expect e.g. *gloriosity* in the first place; i.e., whether the form that has to be blocked in theories with word/word blocking would ever be derived by the grammar. More specifically, this is the question in our framework of whether either of the following objects is found in English:

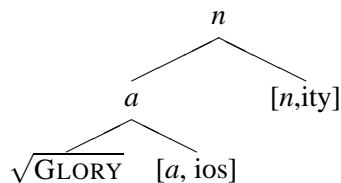
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<sup>13</sup>Aronoff relates the irregularity of -ity to the application or non-application of Truncation (e.g. *atrocious/atrocit*y but not *curious/\*curi*ety). Similar points concerning the interpretation of -ity affixed words arise in his discussion as well.

(36) Structure 1



(37) Structure 2



We address points related to each of these in the discussion below. Our argument is that there is no reason to expect *gloriosity* as the phonological form for either of these structures. The relationship between *glory* and *gloriosity* is thus not an argument for blocking at the word level, since the properties of *gloriosity* can be accounted for independently; generalizing, our conclusion is as follows:

- (38) There is no word/word blocking between lexically-related words that “mean the same thing”.

As we discussed in our overview in §2, Distributed Morphology allows competition for the phonological form of individual nodes. Competition among larger objects— e.g. word/word competition of the type proposed by Aronoff (1976) and others following him— cannot be formulated in the theory. Taking up points from §2 and earlier parts of this section, we demonstrate first that there is no need to prevent the *gloriosity* in (37) via competition, given the correct analysis of English derivational morphology (§3.4.1). When the structures and their allomorphic properties are understood, *gloriosity* is not derived. An additional question considered (and answered negatively) in §3.4.2. is whether or not some evidence for word/word blocking can be gleaned from occasional attestations of *gloriosity* or a hypothetical root nominal *glori-osity* (as in (36)).

### 3.4.1 The Aronoff Effects without Word/Word Blocking

Beyond the (negative) conclusion in (38), there are stronger and more interesting things to say about *glory*/*gloriosity* and related cases that support the notion that grammatical competition is waged at the morpheme level, between Vocabulary Items competing for insertion – once we recognize the full force of Aronoff’s observations.

Our approach is based on identifying possible structures (combinations of Roots, *n* heads, *a* heads, etc.) and further the phonological exponents of the functional heads. There are two aspects to the distribution of the *-ity* allomorphy of *n* that must be taken into account. The first is that in a particular domain, where an *n* is attached to a Root, *-ity* appears sporadically, i.e. with a certain set of Roots that simply must be listed. Thus we find root nominals like *atroc-ity* and *curious-ity*, but many, many other root nominals without *-ity*.

This is merely part of the picture, however. As explored further in, e.g., Baayen and Renouf (1996), while *-ity* is highly restricted in its distribution in what for us is the root nominal structure, it is in fact productive in another context, attaching to adjectival-forming *a* heads with the exponents *-able* and *-al*. Since *-ity* has the listed property that it attaches to these suffixes, it will generally beat out *-ness* as the realization of the relevant nominalizing node, yielding a preference for, e.g., *categorizability* over *??categorizableness*. The Vocabulary Item with the exponent *-ness* functions

as a kind of default for *n*, as seen in (39):<sup>14</sup>

(39) Vocabulary Items

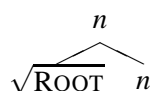
$n \leftrightarrow \text{-ity/X\_}$

$X = \text{Roots } (\sqrt{\text{ATROC}}, \sqrt{\text{CURIOUS...}}); [a, \text{-able}], [a, \text{-al}]$

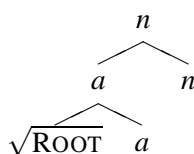
$n \leftrightarrow \text{-ness}$

As outlined above, there are for *gloriosity* two different structures to consider; one in which the nominalizing head *n* is attached to the Root, and one in which it is attached to an “adjective” [ $\sqrt{\text{ROOT}} a$ ]:

(40) Root Attachment



(41) Outer Attachment

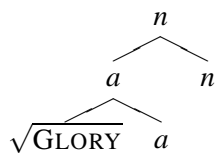


As displayed in (39), one of the possible allomorphs of *n* in (40) is *-ity*; this is a listed property, that is correlated with the presence of certain Roots, but not others, where a number of other allomorphs are found (compare *cat-Ø*, *marriage*, *act-ion*, etc.). The Root  $\sqrt{\text{GLORY}}$  is not on the list in question. Thus there is nothing in the grammar of English that leads one to expect *gloriosity* (or for that matter *\*glority*) with the structure in (40); see also §3.4.2.

In any structure like (41) in which the *n* attaches outside of *a*, some aspects of what happens at *n* are determined by the properties of *a*. With some *a*'s, e.g. the one with the *-Ø* allomorph in *curious-Ø*, or with the *-ous* allomorph in *glori-ous*, the *n* head defaults to the phonology *-ness*. In the case of the ‘potential’ *a* with the exponent *-able*, the situation is different; the *-ity* allomorph of *n* is strongly preferred. In other words, the grammar of English provides no reason for a speaker to suppose that *gloriosity* from *glorious* [ $\sqrt{\text{GLORY}} [a, \text{ous}]$ ] exists, because there is no reason that one would expect to find *-ity* here.

The problem here is not with the syntactic structure. The grammar generates a structure in which  $\sqrt{\text{GLORY}}$  combines with an *a* head, with this being subsequently nominalized by *n*:

(42) Structure



The point is about allomorphy. For the consideration of *gloriosity*, the question here amounts to what phonological form is assigned to *a* and *n*. For *a*, the answer is clearly that *-ous* is found; the real question for *gloriosity* is about *n*, and the answer is that this head in (42) is pronounced *-ness*.

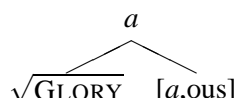
<sup>14</sup>Some further specification might be required here, referring to structural properties of the *n* in question, and in particular whether it is attached directly to a Root, or to another category-defining head. For instance, *-ness* is a kind of default for *n* only outside of other category-defining heads, not in the Root-attached domains. See Embick (2003) for a discussion of how these conditions are relevant to the specification of Vocabulary Items.

Putting these observations together, the structures for the cases under discussion, with exponents of category-defining heads included, are as follows:

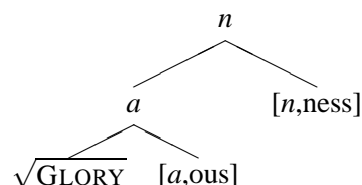
(43) *glory*



(44) *glorious*



(45) *gloriousness*

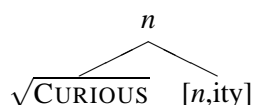


The word *gloriosity* with the structure in (45) is not blocked by *glory*; it is simply not derived. In some sense, then, the ill-formedness of *gloriosity* is similar to that of *\*jaguaress*: neither of these forms is marked ungrammatical by virtue of being blocked by something else. Instead, each is deviant for independent reasons. However, the precise sense in which the two cases are deviant is not the same, in terms of a distinction made in §2. Although in the case of *gloriosity* the hypothesized structure—that in (42)—is well-formed, what is found is a different allomorph of *n* in that structure. In this sense, it is like *\*gived*. In the case of *\*jaguaress*, on the other hand, it seems that in general there is no productive way of expanding the paradigm space so that any noun (from Roots of the relevant semantic classes) can be affixed to form a “feminine noun”. The latter type of fact is independent of allomorphy, in the sense that the “paradigm slot”—understood here as a particular structure produced by the syntax—is not created in the first place.

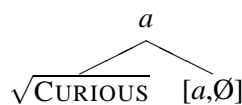
As an interim conclusion, then, we have an account of why *gloriosity* does not exist, one that makes no reference to the existence of *glory*.

With this analysis at hand, we now have a nice account of “doublets”—cases in which there is evidently no strong preference for either *-ity* or *-ness* over the other: *curiosity/curiousness*, *ferocity/ferociousness*, *verbosity/verbousness*, etc. No competition is relevant in apparent doublets like this because the *-ity* form is built on a category-neutral Root, while the *-ous* form is built from the adjective (Root combined with *a*):

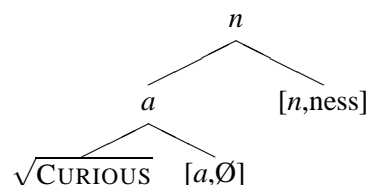
(46) *curiosity*



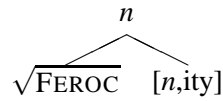
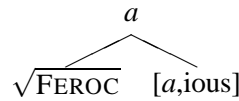
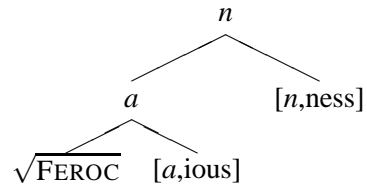
(47) *curious*



(48) *curiousness*



This is most apparent in the cases like *feroc-ity/feroc-ious-ness*—cases of so-called *Truncation*—where *ous/os* is not part of the Root and one can see overtly the *-ity* attaching outside of an object that is phonologically different from what the *-ness* attaches to:

(49) *ferocity*(50) *ferocious*(51) *ferociousness*

But the generalization covers cases like *curios-ity/curious-ness* as well, where *ous/os* is included in the stem form. The doublets stand beside pairs like *\*gloriosity/gloriousness*, with the preference for the *-ness* forms, and pairs like *categorizability/??categorizableness*, with a strong preference for the *-ity* forms. Where there is competition for realization of the nominalizing head in a single structure, a winner emerges (*-ity* outside *-al* and *-able* and a set of listed Roots; *-ness* as default, as in (39) above). The relevant pairs behind the doublets do not involve competition, because the two members of the pair have different syntactic structures: one in which the *n* is attached to the Root, and one in which it is attached to an *a*.<sup>15</sup> Different Vocabulary Items win the competitions in these distinct structures.

Note that the account here is still consistent with Aronoff's original observations, since *-ity* outside *-al* and *-able* functions as *-ness* does—i.e. as “productive” or predicted morphology. It should be exempt from the Aronovian type of blocking to the extent that *-ness* is.

However, local competition for insertion as implemented in our theory goes beyond Aronoff's blocking between listed words, as it includes cases of “productive” affixes ordered by the specificity of their insertion environments. The productive insertion of *-ity* in the environment of *-able* and *-al*, preferentially over *-ness* in these cases, illustrates that local competition produces apparent “blocking” effects even in the case where neither competing word needs to be listed.<sup>16</sup>

### 3.4.2 Some Additional Considerations

We provided an account above in which the structures in which *gloriosity* might conceivably appear do not receive that particular phonological form. There are two further aspects of *gloriosity* to consider. The first is that there are in fact attested instances of *gloriosity*, a fact that warrants further comment. The second point returns to questions about word/word competition: to the extent that something like *gloriosity* exists, what does this imply for word/word blocking theories? We show

<sup>15</sup>If there is any competition when the same structure is at issue, then it is along the lines sketched at the end of §3.1 with reference to *cover* and *coverage* (recall also Fn.11).

<sup>16</sup>“Blocking effects” between two entirely predictable affixes are found in other domains as well. Take passive prefixes in the Hokan language Seri (Marlett and Stemberger 1983, Carstairs 1990). This prefix has the allomorph *p-* when it occurs before a vowel-initial Root, and elsewhere appears as *-a:ʔ-*:

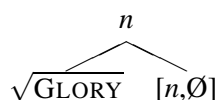
- (i) *-p-eši* ‘be defeated’
- a:ʔ-kašni* ‘be bitten’

The form of the passive prefix is entirely predictable throughout this system; there is no need for either type of competitor to be listed (i.e. we expect passive prefixes nonce on verbs to be treated in an entirely productive fashion). Nevertheless, only one of these prefixes appears with any given verb, “blocking” the other in spite of the absence of listedness or unpredictability.

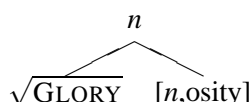
that the possible structures for *gloriosity* are quite restricted; for the speakers that have this form, it appears to be a kind of emphatic of *glory* (following in some sense the general principle that emphatics are larger than their non-emphatic counterparts). Moreover, word/word blocking accounts, to the extent that they predict anything, seem predict that *glory* should block this emphatic *gloriosity* more strongly than a de-adjectival *gloriosity*. This prediction is not supported by the facts.

Some of the groundwork for the first part of this discussion is found above in §3.1. If the grammatical system is explicitly comparing *glory-Ø* and *glori-osity*, this comparison can be reduced to a comparison that is similar to that discussed with reference to *cook-Ø* and *cook-er* above. The zero form of *n* exists for *glory* and *cook*, and thus the motivation for a new root formation of *gloriosity* or *cooker* is not present.<sup>17</sup> That is, given (52), there is pressure (in terms of “semantic space”) for *gloriosity* to be analyzed as something other than (53); if it is analyzed with that structure, it should have to be different from *glory* in some salient semantic sense:

(52) *glory*



(53) *gloriosity* (Root nominal)



The alternative in (53) relies on the hypothesis that *-osity* is in some varieties of English a single affix (i.e. a single piece). Informal web research reveals that *-osity* might be a productive affix in at least some dialects of English (cf. the Bangles’ Babe-Osity album).<sup>18</sup> *Gloriosity* is used not infrequently, with its primary meaning religious, referring to the glory of a deity. Note that the primary usage of *glorious* is connected not to the type of glory that accrues to one via actions or deeds but to beauty and splendor, as in *glorious morning*. *Glory* is most often attributed to people while *glorious* is associated with, e.g., weather, or with physical beauty in people. *Gloriosity* in its most frequent usages (as far as web searches and intuitions reveal) relates to *glory* and not *glorious*, suggesting it involves the use of an *-osity* suffix. One can think of this *glori-osity* as a kind of “emphatic” version of *glory*. This means that to the extent that *gloriosity* exists, it is not found in a structure in which a Root combines with *a* and then *n*; rather, it is a Root combined with an *n* (perhaps an “emphatic” *n*, in the structure in (53) ).

For the purposes of how blocking works, simple word/word blocking stories might suggest stronger blocking of *gloriosity* by *glory* on this reading than of *gloriosity* by *glory* were the former analyzed as created via affixation of *-ity* to the adjective *glorious*, with the meaning “the state of being glorious, as of a morning or a beautiful person.” As noted above, *glory* does not occupy the semantic space of a *gloriosity* formed from the most common meaning of *glorious*, which would be the abstract property related to the basic meanings of *glorious*. On the other hand, *glory* does seem to occupy the semantic space of the actual uses of *gloriosity* (or is closer to it). For a theory with word/word blocking, then, the relationship between *glory* and *gloriosity* does not go as predicted. If anything, such theories predict that an existing *gloriosity* with a meaning “close” to the noun *glory* should be blocked by *glory*, more than a *gloriosity* related to *glorious* would be. This prediction is not borne out.

<sup>17</sup>There is a third option parallel to *curiosity* which would also require an analysis of the Root so that it has an allomorph *glorious* all in one piece.

<sup>18</sup>For the dialect(s) spoken by the authors, uses of *-osity* in the relevant sense are only tongue in cheek. It is quite possible that attested “productive” uses of *-osity* might in some cases have this status as well, to judge from initial searches.

Thus even when we look further into *gloriosity*, there does not seem to be an argument for word/word blocking; if anything, the patterns go in the opposite direction. A close examination of the uses and meanings of *glory*, *glorious*, and *gloriosity* provides no support whatsoever for a word-word blocking approach to the apparent ill-formedness of *gloriosity*.

### 3.5 Synopsis

The main line of the argument above is that there is no evidence for word/word blocking. As part of the change in perspective motivated by our reanalysis, there are different things to say about each of the components of the standard treatment of blocking factored out in (35) above.

#### 3.5.1 Paradigmaticity

All reasonable accounts of blocking are paradigmatic in this sense: they assume that sets of syntactic or semantic features (of the sort usually assumed to be expressed by affixal morphology and/or function words) establish a space of discrete cells or slots for various forms of lexical stems or Roots. In theories such as the Distributed Morphology framework adopted here, the paradigm space generated by grammatical features is a virtual one: it is derivative of the inventory of functional heads and the generative process. The cells and the shapes of paradigms play no direct role in the grammar. For blocking, local competition for insertion of Vocabulary Items into terminal nodes accounts for lack of multiple residents for a given paradigmatic “cell” without direct reference to the paradigm. The syntax generates a structure, and morphophonology provides it with a phonological form.

#### 3.5.2 Lexical Relatedness

To the extent that there is something to say about competition effects, it is in the case of two forms that share the same Root, which can under specific circumstances be seen as competing for the same “slot”. In English, the possibility of past tense for verbs sets up a potential slot for the past tense of any verbal stem. The notion of two forms “meaning the same thing” reduces to the notion of two forms built on the same Root or stem potentially expressing the same set of features, i.e., filling the same cell or slot in a paradigmatic space generated by the possible meaning distinctions expressible morphologically or syntactically in a language. In our theory, in which paradigms are not reified as objects of the grammar, “filling the same slot” amounts to appearing in the same syntactic structure.

As we saw with pairs like *\*gloriosity/glory*, there is no strong evidence that a competition exists between a potential word, *gloriosity*, and the existing word *glory*, in a way that must be invoked to account for the apparent ill-formedness of the former. Rather, the relative ill-formedness of *gloriosity* can be explained in terms of generalizations about the distribution of the *n* head with the exponent *-ity*, without any sort of competition with *glory*. To use these generalizations about *-ity* in the case of *gloriosity*, it is necessary to examine the nominalization of a complex form, *glori-ous*, that contains *glory*. The competition between *-ity* and *-ness* is won hands down by *-ness* when the nominalizing suffix attaches outside the adjective-forming *-ous*. Thus lexical relatedness, internal structure, and “selectional” information about vocabulary items are all relevant to determining when competition between Vocabulary Items yields preference for one form over another. However, the explanations here do not require or suggest blocking relations between whole words that “mean the same thing.”

### 3.5.3 Listedness

Does blocking require “listed” forms taking precedence? Evidently not, as the discussion of *-ity* and *-ness* outside of *-able* etc. shows. What is crucial for the blocking effect is competition for insertion at a single node, not whether or not there is “listedness” of the output of some process.<sup>19</sup>

### 3.5.4 Wordhood

The one aspect of the standard approach to blocking that remains to be examined in detail is the “wordhood” assumption; in particular, the question of whether blocking effects exist between larger objects, and therefore out of the lexicon. Most approaches that consider analytic/synthetic alternations, following the lead of Poser (1992), try to make such interactions look like “standard” blocking, in which a single word takes precedence over an analytic expression. We examine such approaches and the alternative from Distributed Morphology in the next section.

## 4 Word/Phrase Interactions and Blocking

In the previous section we explained why there are no strong arguments for standard blocking at the word level. Nevertheless, it still might be the case that the data like that discussed by Poser (1992) and others apparently involving word/phrase competition might require standard blocking, perhaps with an additional principle that smaller objects block larger ones. In this section we argue against approaches that extend Poser’s line of reasoning about words competing with phrases, and that a syntactic approach (=Distributed Morphology) without competition among larger objects makes the correct predictions.

### 4.1 No Competition: Rules Apply

Our approach to word/phrase interactions is a “traditional” generative one, one that became unpopular when theories began to exploit an assumed split between lexical and syntactic derivations. If the same syntactic structure is found in both the phrasal and single word expressions, the apparent preference for the single word expression, where possible, falls under the generalization that RULES APPLY:

(54) RULES APPLY: Perform a computation when the structural description of the rule is met.

If there is a rule of affixation— a rule that adjoins one head to another— that applies in a particular structural context, it will create something that is pronounced as “one word”. However, the operative principle is not “words are better than phrases”, it is (54). For instance, the *Lowering* of tense to the verb in English is a process that applies when tense is in the appropriate syntactic configuration with respect to the verb. It is “obligatory” in the sense that phonological and morphophonological rules are obligatory.

Further aspects of the past tense cast light on some additional facets of this type of approach. At least since Chomsky (1957), a standard analysis of tense in English puts tense features in a functional head higher than the phrase (VP) in which a main verb might be generated. This positioning

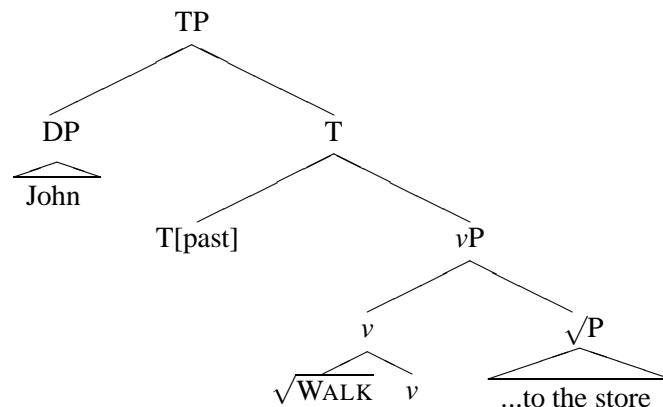
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<sup>19</sup>The same considerations arise in the case of Poser Blocking as well; both the phrasal *more ADJECTIVE* and the word-level *ADJ-er* are entirely regular, modulo the phonological restriction on the adjectives with *-er*. A wug-test with novel adjectives like *wug* yields judgments that if *John is wug* the *Bill is wugger than John* not *Bill is more wug than John*.



of tense features captures the fact that tense has sentential scope, not just scope over the verb to which it attaches, and the facts concerning the distribution of tense morphology in questions, negative sentences, etc. Abstracting away from various details in competing generative analyses, the relevant syntactic tree for a sentence like *John walked to the store* is something like (55), where some details (e.g. subject copy) have been ignored:

(55) Structure

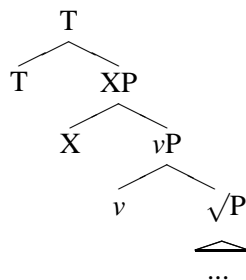


Following the standard analysis, in English main verbs do not raise to the Tense node; instead, the T head must be lowered:

(56) *Tense Lowering*: Tense lowers to *v*.

This rule— a kind of *merger* process— applies when its structural condition is met. Following earlier work on merger operations, Embick and Noyer (2001) hypothesize that a kind of merger called *Lowering*, an operation that relates a head to the head of its complement, applies in English as in (56). As discussed in that paper, syntactic affixation (adjunction; “morphological merger”) can be of different sorts, governed by different structural conditions, depending on the stage in a derivation at which the affixation occurs. The “rule” is an instantiation of the most general recursive operation of the grammar, “merger,” as realized within the parameters dictated by the properties of the structures in which it applies. In the case of *Tense Lowering*, the target for the Tense node is a verb (i.e. *v*) and the locality conditions for merger in this case are met if no head intervenes between Tense and the verb; when a head *X* intervenes as in (57), the Lowering operation (56) does not apply:

(57) No Lowering



So, for example, when a negation head NEG or an emphatic node (i.e. “Σ”, seen in *I DID (too) walk to the store*) intervenes between T and *v*, merger does not apply, because T and *v* are not in the configuration specified in the rule. In such cases, Tense is pronounced as an affix on a dummy *v*, the light-verb *do* (see Embick and Noyer (2001) for some proposals concerning the relationship between *do*-support and Lowering).

It is crucial to note in this context that there is no duplication of the lexical and the structural on this type of analysis. Every theory requires some account of the formation of the past tense. Standard lexicalist accounts rely either on a lexical rule of tense affixation or on a general notion of affixation or merger in the lexicon that allows compatible morphological pieces to get together and percolate their features to the word level. On the Distributed Morphology account, whatever one says about the structural details that define the affixation of T, it is always mediated by a structure that is essentially syntactic. This is a simple consequence of the architecture of the theory, in which there is no lexicon in which complex objects can be built in the first place. There is therefore no sense in which we ask about a complex word apparently consisting of a stem and an affix whether the affixation was the result of a syntactic “merger” or of lexical affixation. All affixation results in a syntactic structure, one that displays the arrangement of syntactic features necessary for the derivation of the syntax, semantics and phonology of the relevant word. The differences between “standard” head movement and the different “lowering” operations discussed in Embick and Noyer (2001) (see below) crucially involve the sensitivity of word formation to the syntactic environment of the words. The same factors must be taken into account on any approach. Thus on some lexical treatment of word formation, the difference between how Tense and the verb relate to one another in English versus French might be recast in a different way, but some difference has to be acknowledged. Thus the Distributed Morphology approach is not under any special burden of proof because it posits different movement operations for affixation. The relevant differences have to be stated in some way in any approach; if a lexicalist approach holds that there is one type of affixation (pieces combining in a lexicon), the differences that we analyze with different movement operations must surface elsewhere in the grammar.

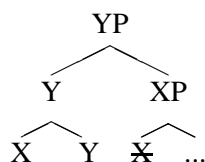
Consider now an approach which sets the phrasal *did walk* in competition against the lexical *walked* to compute the proper realization of the sentence *I walked to the store*. As far as we can tell, only a system of the sort made explicit in Bresnan (2001) would be able to implement this sort of competition formally (see §4.2.2). The reason for this is that the putative competition between lexical and phrasal expressions implicates the presence or absence of negation, emphasis, and/or interrogative structure, such that it is difficult to compute the notion of the availability of the phrasal or lexical expression of tense without a more global consideration of the expression of negation and interrogative force, as Bresnan makes clear. What is needed, then, is some set of constraints on the possible realization of tense and, e.g., negation within the sentential domain. One can imagine a variety of constraints on the expression of negation that would cause *I didn't/did not walk to the store* to beat out *\*I not walked to the store* and *\*I walked not to the store*. The important point to emphasize here is that something like the Bresnan system seems to be required on this type of competition story, and the details in the analysis of negation, etc. must be made explicit and defended against the treatment in the standard generative approaches; it is this challenge that Bresnan's work rises to.

The generative position here claims that what one needs to say anyway in an attempt to generate the possible competitors for a global competition analysis already yield just the grammatical structures. That is:

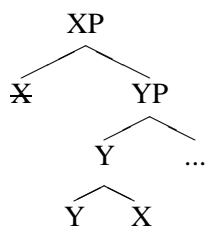
- (58) GENERATIVE POSITION: The space of competitors– “meaning space”, “paradigm space”– must be generated in syntactic derivations. These potential competitors are
- grammatical; and
  - operated on phonologically to yield “pronunciations”, and at LF to yield “meaning”.

For the purposes of word/phrase interactions, the relevant points center on how syntactic affixation occurs in a single structure that could in principle yield one word or a phrase (more than one word). As outlined in our initial comments in this section, our version of the generative approach recognizes different means by which one terminal can be affixed to another (derived from work on “(morphological) merger”, Marantz (1984,1988)). The example of “packaging” that we employed above is the much-discussed case of Tense in English is an instance of Lowering in the terminology of Embick and Noyer (2001). Formally, a head *lowers* to the head of its complement. This operation is the “downwards” version of another complex-head creating operation, “standard” head movement.<sup>20</sup> A third type of operation is defined in terms of linear adjacency rather than hierarchical notions of headedness. This operation is referred to as *Local Dislocation* in Embick and Noyer (2001): this operation affixes one element to another when they are linearly adjacent. Summarizing (with linear order inside complex heads irrelevant; the strikethrough in (59b) is for expository purposes):

- (59) a. HEAD MOVEMENT: Head X raises and adjoins to head Y:



- b. LOWERING: Head X lowers and adjoins to head Y:



- c. LOCAL DISLOCATION: X adjoins to Y under linear adjacency (Concatenation  $\frown$ ):

$$X \frown Y \longrightarrow [[Y]X]$$

Each of these processes crucially involves syntactic notions of locality and intervention, as shown in our initial discussion of Tense Lowering above (in the case of Local Dislocation, the relevant linear notions are derived from a syntactic structure). We discuss the implications of these locality effects in greater detail below. Our central claim is that a theory with syntactic affixation makes the correct predictions about the possible range of word/phrase interactions, i.e. that they occur in the structural configurations implicated by the movement operations above, whereas competition-based theories of different types make incorrect predictions about such interactions.

<sup>20</sup>Some questions have been raised about the status of this operation, see Chomsky (2001). Matushansky (2006) treats the process as movement to a specifier position that feeds a lowering operation.

## 4.2 Competition Theories

Two types of competition theories will be considered here. One type implements competition among multiword expressions (phrases, clauses, etc.), as mentioned with reference to Bresnan (2001) above. These we refer to as “sentential competition” or “global competition” approaches. The second type of competition theory, with Poser Blocking, implements Poser’s original insight: that there are specific nodes in a structure at which comparisons between words and phrases can be made, with a word beating a phrase when the two “mean the same thing”. We outline some key points of difference between the types of competition theories before moving on to a comparison with the generative approach.

Among the different types of theories, one important question concerns whether or not the grammar contains a general principle regulating how words and phrases interact with one another. An instance of the first type of approach is found in Kiparsky (2005), which develops the intuition that blocking is governed by two competing constraints on grammatical expression: they should realize as much of the information to be conveyed as possible and they should be as economical as possible in their expression of information. These constraints favor expressions with fewer morphemes and, perhaps, word over phrasal expressions, if the notion of economy can be tweaked in the appropriate way. These considerations by themselves do not favor stored, irregular forms over generated regular forms when these are equally complex.

The second (Poser Blocking) theory of competition is similar to the first except that it is more explicit about the notions of information preservation in competition and in the notion of economy of expression. On this view, the lexical always takes precedent over the phrasal. Putting pieces together according to the general constraints of a language (say, the phrase structure rules), generates feature structures via conventions of feature percolation and combination. Two generated trees can be compared at any node in the tree. If the node in one tree has precisely the set of syntactic features as a node in the comparison tree, one can then ask about the number of morphemes dominated by the node used to create this feature structure. If one tree has a single word expressing the feature structure at the node but the other tree has a complex structure of words expressing the same feature structure, the single word expression blocks the multiple word expression, rendering it ungrammatical.

Because the different theories we discuss have different takes on the matter, one of the primary questions that must be addressed is if the principle that words are better than phrases (all other things being equal) is an important part of the grammar. We refer to this hypothetical principle as LEXICAL PREFERENCE:

- (60) LEXICAL PREFERENCE: Use a word instead of a phrase when they both express the same features. (I.e. use a phrase exhausted by one lexical item over a phrase that contains more than one lexical item).

The status of this principle figures prominently in the discussion below. For present purposes, one major difference between the two types of theories relying on competition involves situations where it looks like a less expressive structure beats out a more expressive structure - i.e., where considerations of blocking seem to yield a sentence that says less than it should. A crucial example here is, *Aren’t I lucky*, expressing what the otherwise ungrammatical *Amn’t I lucky* would express. *Are* is underspecified for person and number in comparison with *am*, but it appears as if the unavailability of the form *amn’t* causes the choice of less expressive structure here. Optimality theoretic machinery can be employed, as in Bresnan (2001), to compute the competition among various structures expressing a set of syntactic features, with the possibility that some features will not be expressed in

the winning candidate. This type of consideration weighing expressiveness and factors surrounding lexical gaps can be treated under the Kiparskian style blocking but falls outside of the scope of Poser Blocking approaches, since no straight competition between the lexical and the phrasal is involved.

The second important difference between the two competition approaches to blocking is that the Poser Blocking theory limits blocking locally to a node in a syntactic tree; in fact, competition must be assessed at every node in a tree, if the theory is to be fully generalized.<sup>21</sup> A Poser Blocking approach thus makes precise predictions about the locality of competition effects, predictions that differ crucially from those that our theory makes. While Poser Blocking theories circumscribe the locus of possible effects considerably, this is not the case in a sentential competition theory weighing general constraints about the economic expression of features, where the domain of competition depends on the domains in which sets of features may be expressed, as well as possible interactions among the expression of features. Bresnan (2001) implements these sorts of ideas via competition at the sentential level, where the competition is not between a single word expression of the sentence and multiword expressions but among various multiword expressions.

In the remainder of this subsection we exemplify the competition-based theories with “global” properties, and show that they make incorrect predictions.

#### 4.2.1 Kiparsky (2005)

In Kiparsky (2005) two constraints are hypothesized to be operative in the domain of blocking phenomena. These constraints are supposed to exhaust what there is to say about blocking effects, and are evidently operative in all cases to which the term ‘blocking’ has been applied:

- (61) Kiparsky’s constraints
  - a. ECONOMY: Avoid complexity
  - b. EXPRESSIVENESS: Express meaning

The first constraint requires that the ‘simplest’ form be chosen; the second, that meaning be expressed in the appropriate way; i.e., that the expression appear in the correct paradigmatic slot, to employ our language from above. For the notion of ‘simplest’ relevant for the first constraint, Kiparsky suggests a procedure that counts morphemes, noting that other metrics could be conceived of. For our purposes, we will simply assume that there is a way of formulating LEXICAL PREFERENCE along these lines, since what is at issue is how words and phrases interact with one another.

Kiparsky’s constraints should prefer e.g. *smarter* over *more smart* by ECONOMY (i.e. by that theory’s version of something like LEXICAL PREFERENCE). This is something that blocking theories of many different types could accomplish. What happens in other cases is more revealing. Part of what Kiparsky has in mind is a conceptual preference for a “uniform” conception of blocking effects, based entirely on competition. He objects to a view of blocking like that expressed here on the grounds that

D(istributed) M(orphology) in effect stipulates blocking twice: once by positing that merger processes are obligatory— an undesirable stipulation in itself— and secondly as the Subset Principle. (2005:118)

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<sup>21</sup>In Poser’s original conception, competition is constrained to nodes dominating heads. Full comparison of competition and non-competition approaches involves generalizing this notion.

(The Subset Principle is one way of formulating the idea that Vocabulary Items compete for insertion at a single node [de/am])

The objection here is that Distributed Morphology is missing a generalization by saying that some forms fail to occur because of allomorphic competition (e.g. *\*giv-ed*), while other forms fail to occur because of the nature of packaging processes like merger (e.g. *\*more smart*). The nature of the objection is conceptual, in the sense that the problem is supposed to be that a “uniform” notion of blocking should be preferred.

It is instructive to consider in this light that Kiparsky’s treatment accounts only for one case under consideration: blocking of *more smart* by *smarter*. Because the grammar generates the synthetic form here, there exists a word that means the same thing as the phrase, and because the former is shorter in the relevant sense, it beats its analytic competitor by ECONOMY. The same cannot be said about the relationship between *more intelligent* and *\*intelligenter*, however. Kiparsky does not consider this case. If *\*intelligenter* is generated by the system, or if it exists as a possible output form, then it must, by ECONOMY, block *more intelligent*— it is smaller in the correct fashion, by virtue of being a word, and thus should block the phrase. In order to avoid this result, it must be the case that *intelligenter* is impossible in Kiparsky’s system for independent reasons— i.e., reasons other than the interplay of EXPRESSIVENESS and ECONOMY. These principles might be stated as they are on other accounts; specifically, *intelligenter* is underivable because it violates the phonological conditions that govern the acceptability of synthetic forms. Whatever the relevant independent conditions are, the point is the same: Kiparsky’s account “stipulates” blocking effects twice; as far as this sort of arithmetic is concerned, his proposal and ours are similar. One type of blocking arises in the interaction of the two constraints, and another type of effect because certain forms are ill-formed or underivable for other reasons.

What is at issue, then, is not a conceptual preference for one versus two principles (“stipulations”), but which approach makes the correct predictions about the range of analytic/synthetic alternations: the competition-based theory or the generative one. We saw in connection with the earlier discussions of the English comparatives or the English tense/verb system that a competition-based blocking approach to word/phrase interactions must make explicit assumptions about the possible phrasal and lexical expression of features like the comparative, as well as tense, negation, question features, etc.— the whole range of features that play a role in apparent cases of Poser Blocking. Since Kiparsky is vague on the general assumptions about syntax that lie behind his approach, we need to turn to a more fully realized system, that of Bresnan (2001), to compare the generative and competition-based hypotheses.

#### 4.2.2 Bresnan (2001)

The insight behind Kiparsky’s approach to the contrast between *smarter*/*\*more smart* and *\*intelligenter*/*more intelligent* is twofold: a single word expression is preferred over a phrasal expression, but when the single word expression is unavailable, the phrasal expression emerges. Within the generative approach, the same insight is captured without reference to a preference for single word expressions (LEXICAL PREFERENCE). Rather, the syntactic structure that underlies both single word and phrasal expressions yields the single word expression when the conditions on a rule are met, and a phrase when the conditions are not met. One question that ultimately must be addressed is whether there are clear arguments for adopting LEXICAL PREFERENCE or not.


We will examine the exact status of that particular principle later, with respect to a more in-

tricate set of examples. For the moment, we will continue our examination of generative versus competition-based theories by asking whether the global competition approach and the generative approach can be shown to differ in their predictions. Bresnan (2001) points out a strong prediction of the competition-style approach which, if proved accurate, would separate it from the generative approach. Bresnan argues for her global competition analysis on the basis of the claim that it can account for how an apparent gap in the lexicon can cause the emergence of an otherwise blocked phrasal expression. The same prediction is not made in a generative theory. In a generative approach, structures have whatever status they have independent of any other structure that may happen to be derived by the grammar. In a competition-based framework, on the other hand, the deviance of some structure could result in another POPPING OUT, i.e. becoming more grammatical than it would be otherwise.

In an example that Bresnan examines in detail, it is argued that the absence of *amn't* allows the possibility of *Am I not (verb)...?* in some dialects of English, as seen in the following tableau:

(62) Analytic expression emerging

Input: interrogative wide negative 1sg

|  | LEX | *NEG-C | FAITH | *NEG-VP | *NEG-I, *NINFL |
|--|-----|--------|-------|---------|----------------|
| <i>Amn't I working?</i>  | *!  |        |       |         | *              |
| <i>Am not I working?</i>   |     | *!     |       |         |                |
|  <i>Am I [not working]?</i> |     |        |       | *       |                |

Note that the input in this tableau refers to the person and number of the subject, as well as the scope (sentential, not constituent) of negation. The ranking of the various \*NEG constraints encodes the preference for the lexical expression of negation (NEG-I) over the phrasal expression, and a preference for low (NEG-VP) over high (NEG-C) expression. The constraint LEX enforces language-specific lexical gaps; in the case at hand, the fact that *amn't* is disesteemed (i.e. does not exist). If the input were 3sg in place of 1sg, LEX would not be violated for a candidate in which negation and the auxiliary are expressed together (since *isn't* is ok), and thus \*NEG-VP would rule out *Is he [not working]?* in favor of *Isn't he working?* In the 1st person singular case, on the other hand, anything with *amn't* violates LEX; the result in terms of the ranking above is that analytic *Am I not...* is optimal. The *amn't* lexical gap thus allows the emergence of an otherwise dispreferred NEG-VP expression of sentential negation.

On a generative approach, the grammaticality of a structure is not determined by considering alternative realizations of the same set of features. Therefore the status of *Am I not working?* must be determinable in a way that is independent of the lexical gap that results from *amn't* being ill-formed. Here the generative approach apparently makes the correct prediction, while Bresnan's theory produces the wrong results. The competition-based approach with POPPING OUT predicts that if a dialect of English allows *Am I not working?* only because *amn't* does not exist, then in this dialect *Am I not working?* should be better than *Is he not working?*, since the latter should be blocked by *Isn't he working?* given the constraint ranking shown above. Bresnan provides no evidence for dialects in which *Am I not...* is preferred to *Is he not...* in this way, and our own research fails to find such a preference for speakers that allow *Am I not...* or prefer it to *Aren't I...?*

The general point here concerns the status of the POPPING OUT effect; it does not seem to happen in the way that theories like Bresnan's predict that it should. In the case of the past tense, it is quite easy to demonstrate that Bresnan's predictions are not borne out. It is not the case that

the existence of a gap renders some other (otherwise deviant) form grammatical. So, for instance, the lexical gap in the past tense for *forgo*, i.e. the deviance of *\*forwent*, does not make *\*did forgo* grammatical, as Bresnan’s account predicts. For us, *\*forwent* is ill-formed. At the same time, *\*I did forgo dinner* is not improved (or better than *\*I did consume dinner*), despite the ill-formedness of *\*I forwent dinner*. Nor is the gap with *stride*’s participle–, *\*stridden*– associated with an grammatical analytical form that is otherwise impossible (e.g. *has done stride*, or whatever else it might be).

In general, there is no evidence that an apparent gap in the lexicon of this sort improves a conceivable phrasal alternative. On the generative account, this is because the structural constraints on lowering force the operation of merger, so that the phrasal “alternative” is never generated in the first place (i.e. there is no phrasal alternative, because the grammar is simply not structured to generate one). The apparent ill-formedness of the past-tense of *forego* cannot interact with the structural constraints on merger. As we argue later in the paper, it is a mistake to group forms like *\*intelligenter* with forms like *\*forwent* and *\*forgoed*. In the case of *\*forwent*, speakers are confronted by the apparent degraded status of a word generated by the grammar.<sup>22</sup> In such cases, the grammar does not automatically yield an alternative that then emerges as grammatical in some sort of OT computation. In the case of *intelligenter* the word is not generated by the grammar.

Finally, it should be noted that our argument here goes well beyond the familiar difficulty that OT systems have with ineffability. One could integrate some attempt to deal with that problem into Bresnan’s system– e.g. the Null Parse, as discussed recently in McCarthy and Wolf (2005)– and still have the result that the primary prediction of the clausal competition approach is not verified. All that the Null Parse (or equivalent) would do is reduce the number of possible instances in which effects of the strong prediction of Bresnan’s approach– POPPING OUT– could be detected.<sup>23</sup>

### 4.2.3 Blocking and Sentential Competition

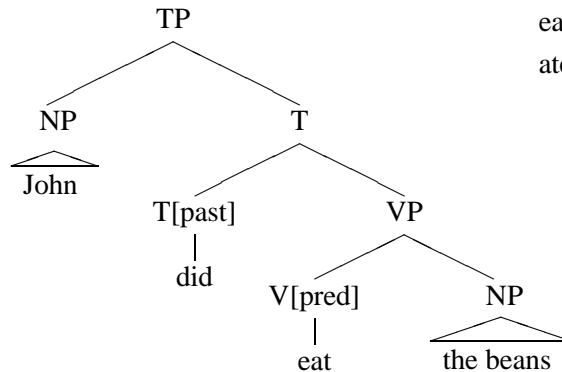
Bresnan (2001) acknowledges that a blocking account of word/phrase interactions requires comparisons between constructions at the phrase or clause level, and not just competitions between words (i.e. it does not suffice to simply have *ate* block *eat*). An examination of Andrews (1990), which Bresnan cites as precursor of her approach, reveals why. Andrews proposes a *Morphological Blocking Principle* that can block a structure, *S*, containing a particular word *L*<sub>1</sub> by consulting the Lexicon for lexical entries related to the word (in practice, for lexical entries containing the same Root, and thus the same Root meaning, as the word in question). If there exists another lexical entry, *L*<sub>2</sub>, such that *L*<sub>1</sub> has a subset of the features of *L*<sub>2</sub> and *L*<sub>2</sub> has a subset of the features expressed in *S*, then *L*<sub>1</sub> is blocked (in *S*). For example, at the sentence level for the sentence *John did eat the beans* (with unstressed *did*), we have the [pred] feature of *eat* plus the past tense features of *did*. Assume further that we have the lexical items in (64) under consideration for appearance in this structure:

<sup>22</sup>We are aware of no account of the degraded status of these past tense forms that is incompatible with our approach.

<sup>23</sup>Put slightly differently, it would be noteworthy if all instances in which the predictions of the competition-based theory could be seen were cases in which it is the Null Parse that POPS OUT. The competition-style theory advocated by Bresnan predicts that there should be instances in which what POPS OUT is in fact something other than the Null Parse.



(63) Structure



(64) Lexicon

eat, [pred]  
ate, [pred,past]

The features of *eat* are a proper subset of the features of *ate*, and *ate* determines a subset of the features of *John did eat the beans*, which thus blocks *eat* from the structure *John did eat the beans* and renders the sentence ungrammatical.

Andrews acknowledges a deep problem for this account of blocking, which essentially involves a comparison between lexical entries but in a particular sentential context. The problem is that the existence of *ate*, continuing with the example from above, should block *eat* not only in *John did eat the beans*, but also in the negative and interrogative versions of the sentence, where the auxiliary *did* is required:

- (65) a. Did John eat the beans?  
b. John didn't eat the beans.

All that the sentences in (65) add to the structure in (63) are an interrogative feature and a negative feature respectively. Given that *ate* blocked the structure with *did* in (63), it is predicted that its existence should block the sentences in (65) as well, but it does not.

Andrews describes two solutions to this problem that will allow the use of *eat* in interrogative and negative sentences, but both involve having the auxiliary add features to the sentence that would not be present without the auxiliary. For example, if *did* adds a +AUX feature to any sentence in which it occurs, the features of the whole, +AUX, PAST, etc., will not be a subset of the features of any lexical verb in the past tense, with the result that the existence of such a verb, e.g. *ate*, will not block a sentence containing *did eat*. The consequence is that the *Morphological Blocking Principle* no longer will have *ate* block *John did eat the beans*. That is, in order to allow the presence of *eat* in sentences like (65) with past tense features, the Blocking Principle cannot block the presence of *eat* in any sentence with the auxiliary *did*.

In general, the *Morphological Blocking Principle* is not up to the task of accounting for the distribution of phrasal vs. single word expressions of inflectional meanings when structural properties of sentences determine when the single word expression is allowed (e.g., when there is necessarily some local structural relation between the functional head containing the inflectional features and the verb stem). To have blocking account for the ungrammaticality of *John did eat the beans* one must compare this to the alternative *John ate the beans*; it does not suffice to simply notice the existence of *ate*. Thus a lexicalist account of word/phrase interactions must either adopt the whole sentence comparison theory of Bresnan, problematic for reasons already discussed, or something like the implementation of Poser Blocking found in Poser (1992) and discussed recently by

Hankamer and Mikkelsen (2002,2005), to which we now turn.

### 4.3 Competition and Poser Blocking

In neither the generative approach nor the Bresnan's sentence level competition-based approach to blocking does a general preference for words over phrases do any real work. On the other hand, for Poser's (1992) initial idea that blocking "extends the boundaries of the lexicon", this is the principle that appears to bear a great deal of the explanatory burden. Whether any explanatory burden should be placed on LEXICAL PREFERENCE is an important question. A kind of conceptual objection could be formed against the generative approach based on whether "merge when the conditions are met" is a hidden way of saying "merge, i.e., prefer a single word expression, whenever you can". If so, then the generative approach would be stipulating on a case-by-case basis something that should actually be treated as a universal principle if words are "better" than phrases.

Part of what is at issue can be seen in (66):

- (66) \*I did walk to the park (unstressed *do*)

The generative approach says that the ungrammaticality of (66) falls under the generalization RULES APPLY; things that are not generated by the grammar, like (66), are ungrammatical. An intuition behind blocking, on the other hand, says that the ungrammaticality of (66) is the result of the preference for the lexical over the phrasal; *walked* beats *did walk*.

The different reactions to Poser (1992) in theories that accept some kind of blocking diverge in terms of how they relate to LEXICAL PREFERENCE. One line of research building on Poser's observations, the line that extends through Andrews (1990) and Bresnan (2001), implements a general comparison between sentences along a number of dimensions. In such approaches, LEXICAL PREFERENCE ends up being a consequence of a constraint ranking rather than an overarching principle. Because lexical gaps do not in general license the emergence of phrasal expressions, we noted above that the intuition behind LEXICAL PREFERENCE does not work out correctly in a system like Bresnan's. In this section we turn to another line of research that extends Poser's proposals by trying to make precise the structural conditions under which words can block phrases.

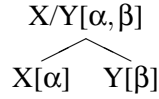
Poser's (1992) original formulation of word/phrase blocking attempts to restrict the competition between words and phrases to particular structures: "small categories", like a node dominating two heads. The idea—also discussed recently in Hankamer and Mikkelsen (2002,2005)—is as follows. Whenever a "small category" is built in the phrasal syntax, the lexicon is scanned; if a word expressing the same features is found in the lexicon, then that word blocks the phrase. As noted earlier, this implementation of "Poser Blocking" can be generalized so that at each node in the structure, the Lexicon must be scanned for an appropriate word. For the purposes of comparing approaches, we consider the generalized version, stated as (67):

- (67) GENERALIZED POSER BLOCKING: For each node in the syntactic structure, scan the lexicon for a word that expresses the same features. If such a word exists, employ the word in place of the phrase.

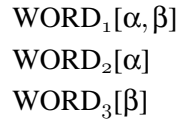
The condition in (67) is a more precise instantiation of LEXICAL PREFERENCE that specifies how a word can compete with and in some cases win out over a phrasal expression.

For many of the cases we are concerned with, what (67) is might mean in structural terms is that a word can block a phrase when the features are provided by elements in a sisterhood relationship:

(68) Blocking Possible



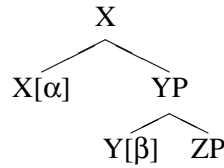
(69) Lexical Items



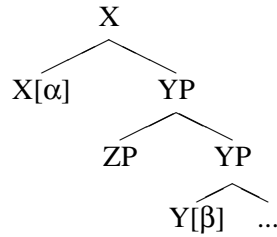
The idea here is that the lexicon of the language contains words that express  $\alpha$ ,  $\beta$  separately, along with a lexical entry that expresses both. With generalized Poser Blocking, the structure in (68) is one in which  $\text{WORD}_1$  must be pronounced. How precisely this might work is discussed in the next subsection.

Theories that implement Poser Blocking make very clear predictions about when a word could block a phrase. They predict that words can block phrases only when that word expresses features of a *node*. Thus words may block phrases when the node in question dominates sisters whose features are expressed. However, other configurations, like the following, are predicted not to show blocking of phrases by words:

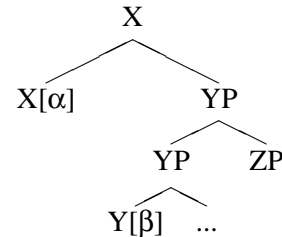
(70) No Blocking



(71) No Blocking



(72) No Blocking



Because  $X[\alpha]$  and  $Y[\beta]$  are not in the relevant structural configuration in (70-72), the word  $\text{WORD}_1$  expressing  $[\alpha, \beta]$  cannot be employed. Rather, what is expected in this case is analytic expression, with the words  $\text{WORD}_2$  and  $\text{WORD}_3$  appearing as separate words within a phrase.

On the other hand, an account of  $X/Y$  forming a “word” that is based on complex head formation in terms of syntactic and post-syntactic locality makes different predictions. Depending on the type of operation that applies, i.e. depending on whether it is hierarchically defined, like head movement (and Lowering), or sensitive to linear order (Local Dislocation), it would be possible to form a complex head  $X/Y$  in these cases and have a single word express  $[\alpha, \beta]$ . In this way, the syntactic approach is less restrictive than the lexicalist alternative with Generalized Poser Blocking, in that it allows synthetic expression of syntactically distributed features in a greater range of cases.<sup>24</sup>

#### 4.4 Case Studies

The real issue is whether the Generalized Poser Blocking theory or the generative theory makes the correct predictions. Our argument is that the generative approach is correct, and generalizes in a way that the Poser Blocking theory cannot. We illustrate this point with reference to Danish definite formation and English comparative and superlative formation, two cases that figure prominently in

<sup>24</sup>On the other hand, the generalized version of Poser Blocking could allow an entire XP, head, complement, and specifier, to be expressed as a single word, with no predictions about that word’s internal structure (if any). The Distributed Morphology approach does not have this property.

the literature.

#### 4.4.1 Danish Definites

Hankamer and Mikkelsen (2002,2005) provide an explicit argument for Poser Blocking in their analysis of definite nouns in Danish.<sup>25</sup> Nouns in this language are suffixed with a definite element under certain conditions as in (73a), such that analytic expression of D and N is ungrammatical (73b):

- (73) a. hest-en  
horse-DEF  
‘the horse’  
b. \*den hest  
the horse  
‘the horse’

The affixed nominal is not found when there is a pre-nominal adjective:

- (74) a. \*gamle hest-en  
old horse-DEF  
‘the old horse’  
b. \*den gamle hest-en  
the old horse-DEF  
‘the old horse’  
c. den gamle hest  
the old horse  
‘the old horse’

Given this alternation between analytic and synthetic expression of D and N, one option considered by Hankamer and Mikkelsen involves a lexically-created “definite noun” like *hesten* blocking the phrasally constructed *den hest*. This is implemented in terms that have been outlined more or less abstractly in our preceding discussion. One step involves a lexical rule of the language, “Rule D”, which, for at least some nouns, creates an affixed “definite noun” of category D; the rule is stated as follows:

- (75) *Rule D* (Hankamer and Mikkelsen 2002:155)

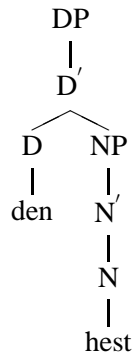
$$\left[ \begin{array}{l} \text{PFORM } \alpha \\ \text{CAT } N \end{array} \right] \Rightarrow \left[ \begin{array}{l} \text{PFORM } \alpha+\text{EN} \\ \text{CAT } D \\ \text{DEF } + \end{array} \right]$$

The second required step is a statement of how the outputs of Rule D interact with phrasally constructed DPs. The interaction is like the one schematized above in our introduction to GENERALIZED POSER BLOCKING. The syntax creates the structure (76). The lexicon is checked at each

<sup>25</sup>The lexicalist treatment with Poser Blocking is presented in Hankamer and Mikkelsen (2002). Hankamer and Mikkelsen (2005) considers a non-lexicalist alternative as well. For our purposes, what is important is the claim that this is a test case for something like Generalized Poser Blocking.

node to see if there is a lexical expression that contains all of the features included in that tree structure. In the case at hand, the lexicon contains derived *hesten*, a definite noun of category D, by virtue of the rule above. Given LEXICAL PREFERENCE as instantiated in Generalized Poser Blocking, the phrasal expression (76) is blocked by the lexical item *hesten*. This single word is employed and projects a DP, as shown in (77):

(76) DP/NP

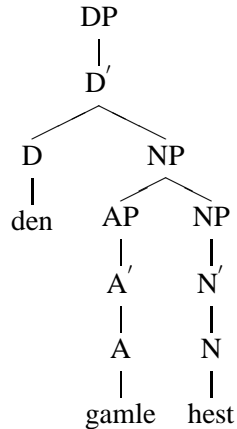


(77) Definite 'Noun'



In the cases in which there are pre-nominal adjectives, it is clear from the structure in (78) that blocking of this type cannot occur:

(78) Prenominal Adjective



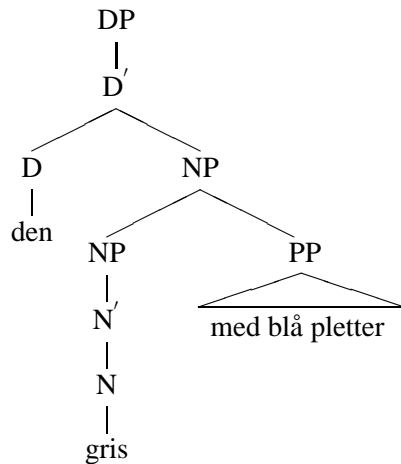
There is no node that expresses just the features of N and D, as there is in the case of (77) above. Therefore the phrase (78) is grammatical, with no affixation of DEF to N.<sup>26</sup> As far as this case goes, then, the Poser Blocking approach is consistent with the facts.

<sup>26</sup>This raises the question of why there cannot ever be an AP associated with a DP that is headed by the output of Rule D. HM state that it is because Rule D's output heads a DP, and APs attach to NPs. It should be noted that the approach requires additional assumptions to rule out (i) with the structure (ii):

- (i) \*Hest-en gamla 'The old horse'
- (ii) Structure

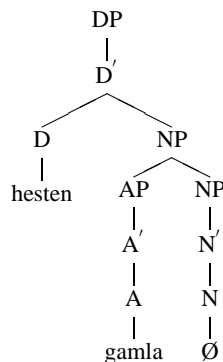
While Poser Blocking makes the correct prediction with prenominal adjectives, it does not predict any kind of left-right asymmetry in the prevention of synthetic definite noun formation. Hankamer and Mikkelsen discuss this component of Poser Blocking with reference to post-nominal PPs. On the standard assumption that these are attached to the NP, the prediction of the Poser Blocking account is that there should be no synthetic expression in such cases; the analytic form should surface:

(79) Postnominal PP (ungrammatical)



Structurally, cases like this should behave identically to the cases with prenominal adjectives above, as far as a theory based on words expressing nodes is concerned. However, this prediction does not hold; instead, PPs after the noun do not prevent the use of the affixed N:

- (80) a. gris-en med blå pletter  
           pig-DEF with blue spots  
           ‘the pig with blue spots’  
       b. \*den gris med blå pletter  
           the pig with blue spots  
           ‘the pig with blue spots’



Or, for that matter, a case in which there is the output of Rule D in the D position, and an overt N in an NP. In general, D's created by rule D must, unlike normal D's, be prevented from combining with NPs. A reviewer notes that an account might be formed along semantic lines, with the output of rule D being of the wrong type to combine with nouns; we defer discussion of such a possibility in the absence of a fleshed out proposal.

In examples of this type, the synthetic form appears in spite of the fact that D and N do not form a constituent. HM discuss a number of possible treatments for patterns of this type, noting that they are forced to a treatment in which all post-head material in NPs must be regarded as adjoined to DP.

Unlike the Poser Blocking approach, an analysis based on syntax and morphological merger makes the correct predictions about locality in this and other cases. For the case at hand, it appears that D affixes to N under linear adjacency:<sup>27</sup>

(81) *D-suffixation*

$$D[\text{def}] \frown N \longrightarrow [[N]D[\text{def}]]$$

This rule says that when D[def] is concatenated with N (i.e. with *n*-headed elements), D is adjoined to N, where it is realized “affixally”. The basic facts of Danish definite DPs are accounted for directly by this rule.<sup>28</sup> Importantly, adjacency-based merger predicts the kind of left-right asymmetry found in Danish and in other cases of affixation under adjacency. In cases with prenominal adjectives, (81) cannot apply because D and N are not linearly adjacent. When, on the other hand, the NP contains post-N material, e.g. PPs, nothing prevents the rule from applying, as its structural description is met. For these cases, nothing further has to be said, as the adjacency-based account already contains the empirically correct locality conditions.<sup>29</sup>

#### 4.4.2 English Comparatives and Superlatives

Poser’s original discussion of word/phrase interactions contains an analysis of a well-known effect in the formation of English comparatives and superlatives, in which there is an alternation between synthetic and analytic forms that depends on the properties of the adjective:<sup>30</sup>

- (82) a. more/most intelligent  
b. smarter/smarter

The question in light of the previous sections is, of course, how the forms in (82) relate to those in (83), and, in particular, if the former are blocking the latter:

- (83) a. \*intelligent-er/\*intelligent-est  
b. \*more smart/\*most smart

Note that with shorter adjectives— those normally taking synthetic forms like in (82)— analytic forms are impossible with regular comparative interpretation. However, they are possible with a “metalinguistic” type of reading, as has been noted in the literature. For our purposes here, since we

<sup>27</sup>Hankamer and Mikkelsen note the existence of various N’s that do not allow affixation with D, something that is not unexpected under the Local Dislocation approach (cf. the discussion of comparative/superlative formation in the next section). The rule in the text must be assumed to have additional specifications in its structural description that account for the exceptional nouns; i.e. it must be made vocabulary-sensitive in the required way.

<sup>28</sup>Embick and Noyer’s (2001) discussion of the interaction of determiner heads and definiteness agreement in Swedish wrongly assumes that D and N combine via head-movement, an assumption that is drawn from elsewhere in the literature.

<sup>29</sup>Other cases, e.g. restrictive relative clauses, are special for independent reasons. See Hankamer and Mikkelsen (2005) for discussion of the facts and some pertinent considerations.

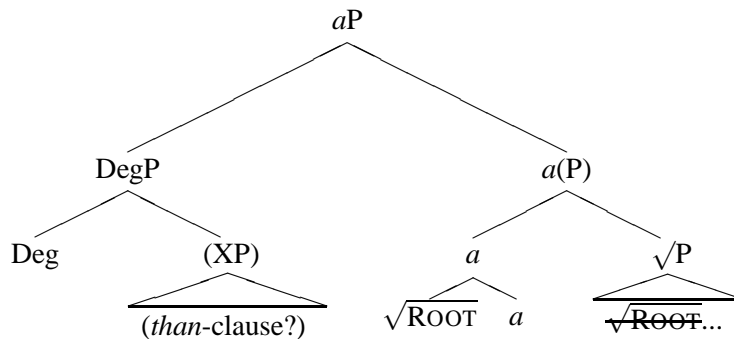
<sup>30</sup>di Sciullo and Williams (1987) also note with reference to English comparative/superlative formation and the formation of Latin passive perfects that blocking effects extend beyond the domain of the “word”. For an analysis of the latter that does not invoke blocking see Embick (2000).

are concentrating on normal comparatives and the processes responsible for the analytic/synthetic alternation, we mark such examples with an asterisk to indicate that *more smart* is not a grammatical pronunciation of the normal comparative of *smart*; we put aside discussion of the morphosyntax of metalinguistic comparison here (see Embick 2006a and references cited there).

The patterns in (82-83) provide another important case study for the discussion of this paper. According to Poser (1992) and others who have followed him, such as Kiparsky (2005), *smarter* does in fact block *\*more smart*. Our position is that the proper analysis of these patterns can be derived within the generative approach, and that the Poser Blocking alternative simply makes the wrong predictions.

Any account of the morphophonology of comparatives and superlatives must make reference to the syntax of such constructions. We assume, with much work that concentrates on the syntax and semantics of comparatives, that the structure of the comparative is (84) (cf. Bhatt and Pancheva (2004) for a recent discussion); in this structure, the Root moves to *a* by head movement:

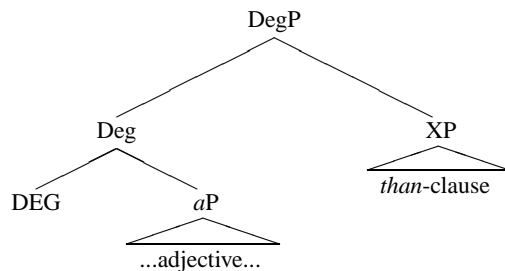
(84) Structure of Comparative/Superlative



We indicate with parentheses in the DegP the fact that we are not taking a stance on certain aspects of comparative syntax, in particular, the question of whether or not the *than*-clause is generated as a sister of DEG inside DegP and then subsequently extraposed to yield surface orders like *Mary is more intelligent than John*.<sup>31</sup>

<sup>31</sup>The structure in (84) represents one approach; for our purposes, the structure could also be (i); these structures are equivalent for the point that we wish to make about blocking, although of course they are not syntactically:

(i) Alternative



In either case, an adjacency-based treatment like the one discussed in the text makes the correct predictions, whereas the blocking alternative does not. Other effects— for example, whether or not unpronounced copies are visible or not for adjacency-based affixation— are implicated in the choice of comparative structures; see Embick (2006a) for some discussion.



For the purposes of blocking, what is important about (84) concerns how this structure relates to synthetic forms like *smarter* and analytic forms like *more intelligent*. For our approach, this is the question of the conditions under which DEG combines with an adjective ( $=[\sqrt{\text{ROOT } a}]$ ).

This question is addressed in Embick and Noyer (2001) and examined in greater detail with respect to issues of blocking in Embick (2006a). In terms of the head-packaging operations discussed earlier, the evidence suggests that when DEG is moved, it is combined with its host by a process that operates under conditions of linear adjacency; i.e. by Local Dislocation. The rule in question affixes DEG onto the adjective when (i) they are linearly adjacent, with (ii) the further condition that the adjective have the correct phonological properties. This is stated schematically in (85):

(85) *Local Dislocation for Comparatives/Superlatives*

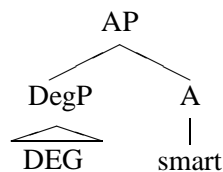
$$\text{DEG} \frown \text{Adjective} \rightarrow [[\text{Adjective}]\text{DEG}]$$

where Adjective has the relevant phonological properties

This is a rule of the PF component of the grammar, one that creates complex heads. As far as the syntax is concerned, the structure of all comparatives and superlatives is that in (84). In the case of shorter adjectives like *smart*, the rule (85) applies. The effect is to place DEG inside the same complex head as the adjective, i.e. to affix it. Inside a complex head DEG is pronounced *-er*, and we have a synthetic comparative, *smarter*. In the case of phonologically heavier adjectives like *intelligent*, the rule in (85) does not apply. The DEG head and the adjective thus remain distinct heads in the representation. In this case, DEG is pronounced *more*, so that we have an analytic comparative, *more intelligent*.

By means of providing a blocking alternative to this generative account, we can formulate a Poser Blocking account with LEXICAL PREFERENCE quite straight-forwardly along the lines sketched above. This treatment assumes that the Lexicon is capable of generating some synthetic comparative forms, i.e. comparative adjectives like *smarter*, which then function as DEG elements in the syntax (analogous to the Hankamer and Mikkelsen treatment of definite nouns in Danish above). The syntax creates a structure in which DEG combines with an adjective:

(86) Structure



(87) Employed Item



The lexicon is then scanned, and the action takes place at the AP node. In the case of (86), an object in the lexicon, *smarter*, expresses all of the features that appear in this AP (i.e. the features of *smart* and the comparative features). Therefore the two objects (86) and (87) are in competition with each other, and by LEXICAL PREFERENCE the single-word expression wins, thus blocking the phrase. The syntax then employs a “comparative AP” headed by *smarter* (87), parallel to the discussion of Danish definites above.

This account with Poser Blocking requires that the derived word in effect substitute for a node (technically, that an AP headed by the single lexical item *smarter* be employed in preference to the AP that contains additional internal structure *more smart*). Recall that in our discussion of Danish above, there was a problem for the Poser Blocking analysis in the fact that post-nominal material does not force the appearance of an analytic DP. Along these lines, a parallel set of examples can be formed for the English comparative, examples showing that there are clear cases in which there are adjectives with AP-internal material, but which nevertheless allow synthetic comparative forms, contrary to the Poser Blocking prediction.

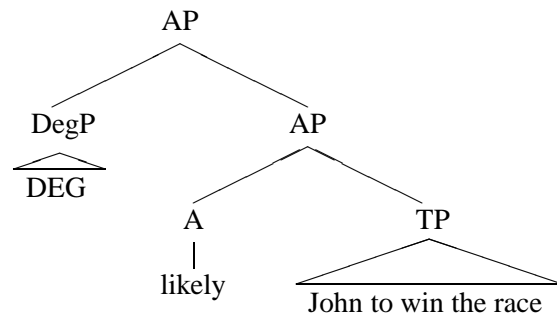
For post-adjectival material, there are a number of different configurations in which an AP that appears in a comparative has internal structure. The prediction of Poser Blocking is clear: such cases should uniformly disallow the creation of a synthetic comparative. Yet this is not the case:

(88) Adjectives with complements

- a. Raising: John is [likeli-er [~~John~~ to win the race]]...
- b. Control: Mary is [quick-er [PRO to spot counterexamples]]...
- c. Transitive Adjectives: Bill is [proud-er [of his accomplishments]]...
- d. *Tough*-Construction: Susan is [easi-er [to understand]]...

For instance, we take it that the structure of (88a) is as follows, where the raising infinitival clause is the complement of the adjective (which we represent as an A and not a  $[\sqrt{\text{ROOT}} a]$  to facilitate exposition):

(89) Substructure for (88a)



There is no node that could be pronounced as the features of Deg and the adjective alone. Thus for Poser Blocking *likelier* should be impossible. The adjacency-based treatment outlined above does not suffer from this problem. In the cases in (88), DEG and the adjective are linearly adjacent to one another, and thus the rule that affixes DEG under adjacency can apply. This approach is able to account for the facts, whereas the alternative does not.<sup>32</sup>

<sup>32</sup>We note in addition that material to the *left* of the adjective appears to prevent the formation of synthetic comparatives. The facts are somewhat complex (see Embick 2006a for some discussion), but it can be shown that in cases like the following, the comparative Deg scopes over an adverbially-modified AP, and, as predicted, no synthetic form is possible:

- (1) a. Mary is [more [amazingly smart]] than Bill.  
\*amazingly smarter, on the relevant bracketing
- b. John is [more [ploddingly slow]] than Susan.  
\*ploddingly slower

It seems that both Poser Blocking and the generative approaches make clear predictions about locality and analytic/synthetic alternations. Those of the generative approach are correct for the cases we examined above, and generalize to others as well; we are in fact aware of no cases with the properties that are expected if Poser Blocking is part of the grammar (§4.6).

#### 4.5 Remarks on LEXICAL PREFERENCE

To this point we have established that the Distributed Morphology approach makes the correct predictions about word/phrase interactions, while Generalized Poser Blocking does not. As we have noted at various points, these two theories differ in terms of whether they accept the intuition that words are better than phrases. In the generative view, this is not a principle, whereas for Poser Blocking and other theories, it is supposed to be doing a lot of the relevant work. We present here some additional remarks on LEXICAL PREFERENCE.

Assuming that matters are held constant in terms of what features are being expressed, theories with lexicalist Poser Blocking express the intuition that we have encoded as LEXICAL PREFERENCE above. It is important to note the principle LEXICAL PREFERENCE cannot by itself account for what is found in e.g. comparative formation; it has to be augmented by additional principles or constraints. The reasons for this were already outlined above. In a competition-based view, such as that presented in Kiparsky (2005), one possible candidate for the expression of the meaning “comparative of *intelligent*” is the synthetic form *intelligenter*. If LEXICAL PREFERENCE (in Kiparsky’s terms, ECONOMY) were the primary factor in determining the competition that selects the grammatical form, then *intelligenter* should be preferred over *more intelligent*, contrary to fact. Some other constraint in the grammar must ensure that *intelligenter* be marked as bad for morphophonological reasons; i.e., there must be some constraint ranked higher than LEXICAL PREFERENCE that is doing most of the work here. The only other alternative would be to hold that *more intelligent* and *intelligenter* are not actually competing with one another for the expression of the same meaning (= “paradigmatic slot”, in our metaphor). However, this move is problematic. Why *smarter* and *more smart* would express the same features, while *intelligenter* and *more intelligent* would not, is unclear. Technically, this could take the form of the proposal that *-er* introduces/expresses features when it occurs with *intelligent* that are not introduced/expressed when it is affixed to e.g. *smart*, but this seems to be missing the point. Thus even in theories that want to elevate LEXICAL PREFERENCE to an important grammatical principle, it is not doing all of the relevant work.

As seen in several points in the discussion above, a more pressing problem with LEXICAL PREFERENCE is that in many if not all of the cases in which it could potentially do some work, comparisons require consideration of alternatives at the phrase level, and not simply at the level of words. The examples discussed above show one type of interaction, in which *intelligenter* cannot be preferred to *more intelligent* for morphophonological reasons. But there is a stronger point here as well. In the analysis of analytic/synthetic alternations, it quickly becomes clear that simply noticing that e.g. *ate* exists does not suffice to account for where this form occurs at the expense of *did eat*, as we noted with respect to Andrews (1990). Instead, the relevant comparisons involve phrasal objects, with the expression of Tense, Negation, etc., as we have discussed many times with reference to Bresnan (2001). From this perspective, the operative principle is not one in which words are better

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Much care must be taken in cases of this type to ensure that there is a ‘true’ comparative interpretation (as opposed to a metalinguistic comparative interpretation), and that the bracketing is [DEG [ADV ADJ]], and not [[DEG ADV] ADJ]. When these factors are accounted for, it appears that the adjacency-based Local Dislocation of DEG is prevented, as predicted.

Along a related line, Bresnan (2001) notes problems with Poser Blocking and the comparative, with reference to examples like [*exactly three times more*] *expensive*.

than phrases; rather, the theory holds that certain types of phrases are better than some other phrases, with LEXICAL PREFERENCE a possible emergent side-effect of the overall constraint ranking.

The general question is whether an account that does not encode LEXICAL PREFERENCE, either in a theory like ours or in a theory like Bresnan's, is missing a crucial generalization. One way to approach the question head on is simply to ask whether the grammar seems to function as if it contains LEXICAL PREFERENCE as an inviolable principle in the first place. There are some cases that make it look as if this principle can be overridden. To take a case in point, consider the often-discussed example of prepositions and determiners in French. For certain combinations of P and D, a "fused" form is required, as in (90a), whereas for other combinations this is not the case (90b):

- (90) a. "Fusion"
- i. du chat (\*de le chat)
  - ii. aux enfants (\*à les enfants)
- b. No "Fusion"
- i. de la mère
  - ii. à la femme

Note that our discussion here does not rely on the question of whether or not there is one Vocabulary Item *du*, or two (*d* and *u*) in a branching head. The point is that for the purposes of morphophonology, the special P/D forms are realized in a single complex head.

The cases in (90a) look like prime exemplars of the operation of LEXICAL PREFERENCE: *du* and *aux* exist, and must appear at the expense of phrasal two word alternatives. However, it is significant to note that the "fused" P/D elements are prevented from occurring when the element following the D is vowel-initial:

- (91) a. de l'arbre
- b. \*du arbre

Thus whatever LEXICAL PREFERENCE might encode, it is not inviolable, and in general it is not the sole factor in determining the winner between competing forms that (by hypothesis) "mean the same thing". The only competition-based means of account for these patterns would, evidently, require an Optimality-Theoretic computation in which LEXICAL PREFERENCE can be outranked by other constraints; in the case at hand, perhaps something like \*HIATUS.

There are no *prima facie* problems for a generative approach posed by the interaction between P, D, and whatever follows D, although there are some interesting aspects of this phenomenon (it might, for example, illustrate something about cyclicity; see Embick (2006b) for an analysis that takes cyclicity into account).<sup>33</sup>

Overall, it does not appear to be the case that there are significant generalizations being missed by theories that do not adopt LEXICAL PREFERENCE.

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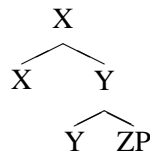
<sup>33</sup>As an aside, we note that both *de l'arbre* and *du arbre* could be seen as containing two "words", if French is assumed to have something like Hankamer and Mikkelsen's Rule D for vowel-initial nouns. One might therefore consider a theory in which it is, as far as some global counting is concerned, the overall number of nodes (lexical items) that is optimized. In such an account, both competing outputs in (91) contain the same number of words, i.e. could be seen as equally "economical" given some general idea that the optimal case involves the fewest words. Our point still holds, in that LEXICAL PREFERENCE by itself cannot account for why (91a) is grammatical and (91b) is not.

## 4.6 Synopsis

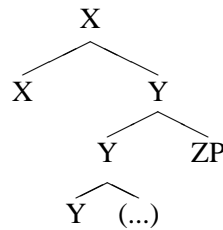
The kind of constituency-based word/phrase interactions required on the formalization of Poser Blocking discussed above makes very clear predictions about when words should be able to block phrases. As detailed above and elsewhere, these predictions are not borne out.

Abstracting, what is not attested is a case in which, for X and Y that potentially form “one word”, both pre-Y Z(P) and post-Y Z(P)– whether complements to Y or specifiers/adjuncts in the phrase headed by Y– prevent a lexical form. Another way of putting this is that the Poser Blocking approach predicts no blocking of phrases by words in either of the following configurations (showing complement and non-complement status for ZP), where linear order of ZP in particular is irrelevant:

(92) Configuration 1



(93) Configuration 2



It is not difficult to describe what such a language would look like. One type of case would be a language with an interaction between Tense and the Verb like that found in English, but in which transitive verbs required analytic forms, unlike intransitives:

(94) Hypothetical English'

- a. John laugh-ed.
- b. John did eat the apple.

Naturally this hypothetical English relies on a number of assumptions about constituent structure that are subject to question. The general point is that in this or other domains that have been examined, cases with the property schematized in (92-93) are not found. In general, we are not aware of any cases that pattern in the manner predicted by Poser Blocking, i.e. cases in which any material that interrupts “node-sharing” prevents the creation of a synthetic form. On the other hand, every case that has been studied systematically shows locality properties definable in terms of a syntactically-derived structure and operations on it, i.e. in terms of putting heads together either in terms of hierarchical structure, or in terms of linear relations defined from this structure post-syntactically. The generative approach that makes these predictions is completely general, in the sense that it is not a specific theory of word/phrase interactions. There is a theory of syntax, and a theory of how the heads in syntactic structures are packaged, and this covers affixation in general. Word/phrase interactions are a subcase of this general theory of syntactic affixation.

We conclude from these considerations that the Poser Blocking approach fails, not for conceptual reasons, but because it simply makes the incorrect empirical predictions. Poser Blocking fails because it cannot account for the range of cases in which word/phrase interactions (or affixation more generally) occurs. Other competition-based theories, like Bresnan (2001), do not overly restrict the size of objects in which competition takes place (Bresnan (2001:16) in fact critiques Poser Blocking along these lines, as noted above). However, Bresnan’s theory of competition at

the sentence-level makes incorrect predictions as well. The generative approach within Distributed Morphology, on the other hand, is able to explain the attested patterns.

## 5 Conclusions

An analysis of blocking effects requires specific assumptions about the architecture of grammar along numerous dimensions that define a space of competing theoretical approaches. Cases of apparent competition between single word and phrasal expressions, in what has been termed Poser Blocking, highlight the need for any theory of grammar to explain the connection between affixation and the sentential distribution of information carried by closed class items (e.g., tense). Although it is true that a theory in which all affixation is syntactic, like Distributed Morphology, leads one to expect the sorts of interactions exemplified by cases of Poser Blocking, our primary argument here has been toward a stronger conclusion: there are clear *empirical* domains in which this grammatical architecture makes the correct predictions, whereas others do not.

Looking primarily at (i) the locality of competition effects, and (ii) the question of whether otherwise well-formed structures are marked ungrammatical as a result of competition, we showed that the generative approach to grammar as formalized within Distributed Morphology forces an analysis that explains the facts. Other alternatives, with competition between larger objects (words, phrases, sentences as opposed to Vocabulary Items) and different notions of what it means to be (un)grammatical, do not make the correct predictions. Lexicalist approaches to blocking, as inspired by Poser's (1992) work and as formalized by Andrews (1990) and by Hankamer and Mikkelsen (2005), stumble because single words are (sometimes) not constituents from the point of view of the functional structure of sentences, arising instead from the syntactic manipulation of heads (via head-raising, merger, and local displacement). Recognizing this problem with the narrow lexicalist account of blocking, **Bresnan (2001) proposes that blocking involves an OT competition at the sentential level.** We saw that global approaches of this type fail because they predict non-occurring emergence of the grammaticality of phrasal expressions when single word expressions are ill-formed or unavailable. There is thus no evidence for blocking at this global level, where a blocked but otherwise well-formed expression becomes grammatical via unblocking when an otherwise more harmonic expression is removed from the competition. Moreover, the generative approach was shown to make the right predictions about directionality effects on syntactic affixation: for example, Distributed Morphology provides an account of why material to the left of a head in a head-initial structure might result in a phrasal expression where a single word expression would otherwise be available, while material to the right would not. As a general point, the lexicalist approach explicitly predicts symmetrical effects on word/phrase interactions, and these are never exemplified.

We take these results to constitute a strong argument for generative approaches to grammar in general, and for our version of such an approach in particular.

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#### Addresses:

David Embick  
Department of Linguistics  
619 Williams Hall  
University of Pennsylvania  
Philadelphia, PA 19104-6305

embick@ling.upenn.edu

Alec Marantz  
Department of Psychology  
New York University  
6 Washington Place, 5th Floor  
New York, NY 10003

marantz@nyu.edu