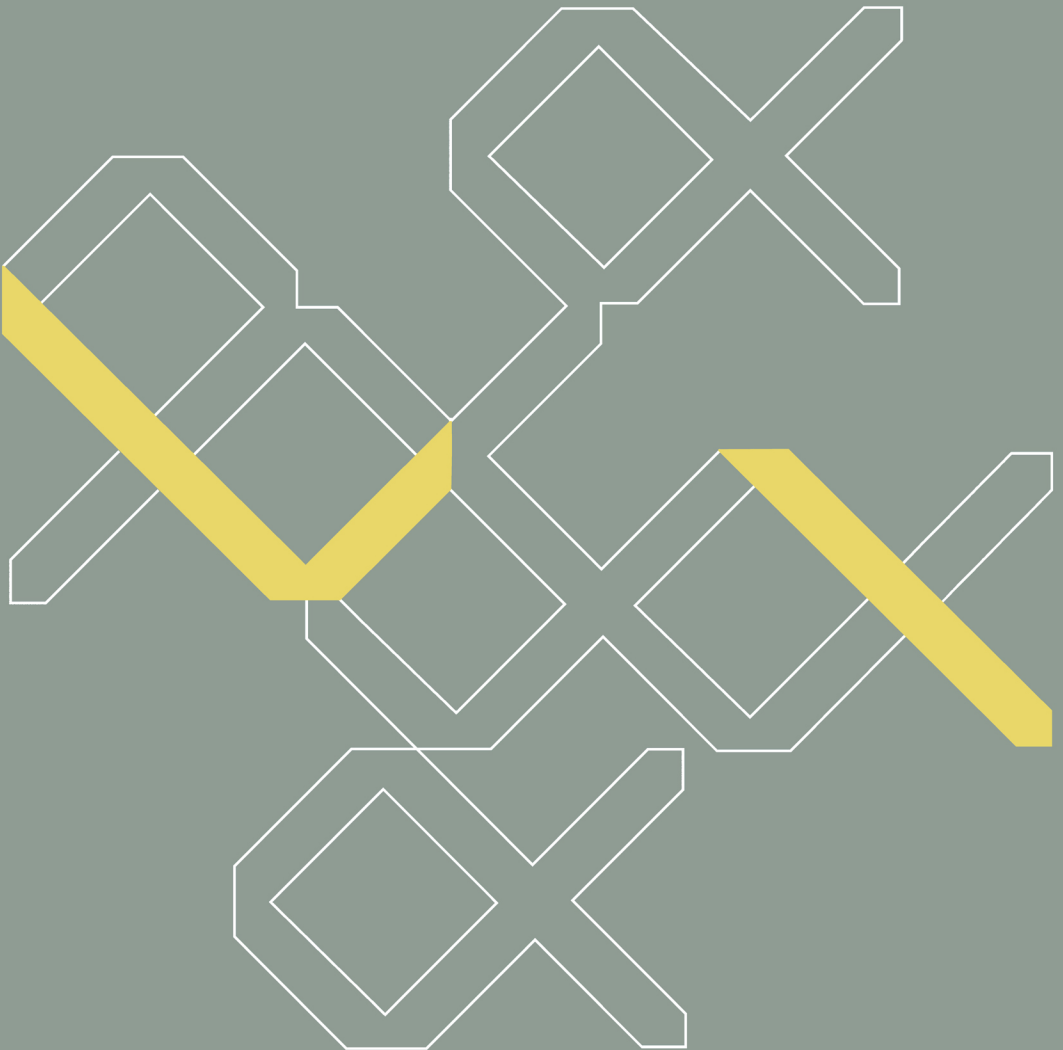




Linguistic Inquiry
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Localism versus Globalism in Morphology and Phonology

David Embick



Localism versus Globalism in Morphology and Phonology

Linguistic Inquiry Monographs

Samuel Jay Keyser, general editor

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Localism versus Globalism in Morphology and Phonology

David Embick

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Series Foreword

We are pleased to present the sixtieth in the series *Linguistic Inquiry Monographs*. These monographs present new and original research beyond the scope of the article. We hope they will benefit our field by bringing to it perspectives that will stimulate further research and insight.

Originally published in limited edition, the *Linguistic Inquiry Monographs* are now more widely available. This change is due to the great interest engendered by the series and by the needs of a growing readership. The editors thank the readers for their support and welcome suggestions about future directions for the series.

Samuel Jay Keyser
for the Editorial Board

Preface

The research presented in this book came about as a consequence of my thinking about *competition* in the grammar, a topic explored in Embick 2007a and Embick and Marantz 2008. The general picture that emerges in those papers is that the grammar allows no competition among complex objects (words, phrases, etc.); rather, competition is restricted to the allomorphy of individual nodes. This view, motivated primarily by investigations on morphosyntax, is incompatible with the dominant view in phonological theory, Optimality Theory (OT), which posits competition among infinite sets of complex objects. The conflict between these positions reduces to a form of the debate between derivational and non-derivational views of grammar: more specifically, whether the grammar functions in *localist* or *globalist* terms.

Determining how to make empirical comparisons between such large positions like this, and the different frameworks that embody them, is at the heart of this book. The main argument is that patterns of allomorphy implicate general questions about locality, and specific questions about the manner in which (morpho)syntax relates to (morpho)phonology. Allomorphy in general thus provides a crucial test case for comparing localism and globalism.

With its specific focus on allomorphy, this book presents two major results. First, it articulates a theory of cyclic derivation, which is central to understanding patterns of allomorphic interaction, and shows how linear adjacency plays a further role in relationships in phonological form. Second, it shows that this type of localist theory and various globalist theories can be compared directly in the domain of phonologically conditioned allomorphy, and that the localist theory makes the correct empirical predictions.

The arguments presented below will stand or fall on their own. Further comments are in order, however, concerning how to interpret these results. In my view, it would be possible to conclude from the arguments

in this book that the localist theory is correct for morphosyntax, but that, at least for certain parts of the phonology, a globalist architecture is required. That is to say, it could be discovered that there are generalizations about phonology outside the domain of allomorphy that crucially require globalism. This conclusion is possible, but it should be treated with extreme caution. The idea that a large part of the phonological grammar operates in ways that are utterly indifferent to or incompatible with the system for generating complex objects is suspicious, or at the least unfortunate. It would mean that part of the way that complex objects receive their phonological form derives crucially from the manner in which these forms are generated, and that another part derives from a system that operates in radically different terms. More precisely, the morphosyntax would generate a structured representation of a complex form, linearize it, give phonological form to the morphemes, and so on; and then another system would start up, generate infinite competitors from this object, and assess them with respect to well-formedness. The empirical argumentation required to motivate this type of hybrid architecture would have to show beyond any doubt that two fundamentally distinct systems like this are required.

In my view, the most productive research program is to meet these issues head-on. Rather than assuming that morphosyntax and morphophonology might be fundamentally different, and ignoring questions about unification, it should be assumed that there is no extreme difference between these facets of grammar.

My hope is that the research presented here provides a basis for future work along these lines. While there are many areas that could be investigated as a follow-up to this line of inquiry, one general type of question for future work is whether the types of arguments developed for allomorphy in this book can be constructed in other parts of phonology, to bring empirical (and not conceptual) arguments to bear on the question of localism versus globalism. These points are particularly relevant given some other directions of recent research. For example, some versions of OT have moved away from full globalism (e.g., stratal OT, in Kiparsky's (2000) sense); other versions of OT that have emerged recently are radically serialist in nature (see, e.g., McCarthy 2008; Wolf 2008). While I do not review the latter approaches in detail here, the move toward the kind of localism that arises from serial ordering certainly deserves to be noted. What remains to be seen is whether the remaining globalism in such theories (comparison of complex forms at individual derivational steps) leads to predictions that can be distinguished empirically from those of the type of theory presented in part I of this book.

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I am grateful to many people who have discussed these ideas with me during the time I was writing this book.

For detailed comments on manuscript versions of the book, and for numerous discussions of its core substance, I thank Morris Halle and Alec Marantz. Morris deserves special mention for having read/commented on/suffered through innumerable prior versions, always insisting on improvements that made every aspect of the work better. Alec's comments at a key point in the fall of 2008 led to a reformulation of many central proposals in part I of the book and to some significant clarifications and extensions in part II. I hope that the end product is worthy of this attention.

Many people have contributed substantially to the work presented here, both in discussions of this (and related) material and in providing comments on earlier versions of subparts of the book. To name a few, I would like to thank Jonathan Bobaljik, Gene Buckley, Andrea Calabrese, Andrew Carstairs-McCarthy, Aviad Eilam, Bill Idsardi, Tony Kroch, Laurel MacKenzie, Rolf Noyer, Marjorie Pak, and Don Ringe.

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Earlier versions of the material found in this book were presented at Cornell University (SPINE III); III Encuentro de Gramática Generativa (Mendoza, Argentina); the University of Maryland, College Park; McGill University; the Spring 2008 morphophonology seminar at the University of Pennsylvania that I co-taught with Gene Buckley; and my Spring 2009 seminar in morphology. Thanks to the audiences at these

talks and participants in these seminars for offering comments that improved this work in more ways than I could list easily.

Finally, I would like to thank the MIT Press—Jay Keyser, Ada Brunstein, and Anne Mark in particular—for working with me on this project.

1 Introduction: (Morpho)syntax versus (Morpho)phonology

Theories of grammar (and of language more generally) make specific claims about how the different facets of language are analyzed, often in ways that create partitions that are at odds with descriptive works, and, notably, at odds with each other. Although different theories propose very different models of the grammar at an architectural level, and the questions involved in distinguishing among competing theories are often quite subtle, the ultimate assessment of questions of this type is empirical. For example, there is no way of knowing based on conceptual or a priori considerations whether “phonology” and “morphology” constitute one component of the grammar, or more than one. This is a question that has to be answered by taking specific models that make competing claims about these facets of linguistic knowledge, and comparing the empirical predictions these models make. While conceptual considerations about a particular type of explanation are discussed to some extent below—mostly to highlight why the empirical questions are the most important—it must be emphasized from the outset that the crucial comparisons are always to be found in the empirical predictions made by different theories.

The question central to this work concerns how the system (or systems) responsible for deriving and representing the syntactic and morphological properties of complex expressions is related to the system that computes the phonological form of these expressions. In terms that look ahead to the details examined below, this is the question of whether morphology is computed in the same system as phonology—in which case morphological and phonological computations can in principle interact globally with each other—or whether morphology and phonology are computed by distinct linguistic systems, organized serially in a way that restricts potential interactions.

This book is a sustained argument for the position that phonological form is computed in a way that is directly linked to the generative pro-

cedure responsible for creating complex expressions, and that (morpho)-syntax and (morpho)phonology interact in a limited way that reflects the serial organization of these parts of the grammar. In the particular model of grammatical organization that I argue for, phonological computations apply after syntactic structures have been spelled out cyclically and processed morphologically (perhaps with interleaving; see below). Morphological operations—in particular, those responsible for *allomorphy*, in which the phonological forms of morphemes are determined—are constrained by the cyclic organization of the grammar and by the local domains that are defined by syntax and syntactic relations. The derivational properties of this approach thus place significant restrictions on potential interactions between morphosyntax and morphophonology.

This derivational view of grammar differs substantially from what has been the prevailing view in phonological theory, where much recent research has concentrated on developing *nonderivational* theories. The specific questions addressed in this book are part of the more general debate between derivational and nonderivational theories, initiated in the recent theoretical context with the development of Optimality Theory and other surface-oriented theories of grammar. This book approaches the general debate between these opposing positions by looking at allomorphy in natural language, a phenomenon that lies at the interface of morphosyntax and morphophonology. The central point is that allomorphic alternations provide decisive empirical evidence in favor of the derivational view.

Before the discussion advances to technical points, a note is in order about the connotations of some of the terms used in this book. The debate between derivational and nonderivational theories has been at the center of some of the most significant and heated theoretical discussions in linguistic theory. In framing the particular questions that are addressed in this book, I will use another set of general terms for describing the opposing theoretical positions to be examined: specifically, I write in terms of *localist* versus *globalist* theories on the one hand, and *serialist* versus *parallelist* theories on the other. These terms are not as charged as *derivational* versus *nonderivational* are. Moreover, they identify differences in theoretical approaches at a finer level of granularity than the *derivational* versus *nonderivational* distinction does. But the concession to greater detail that motivates this terminological choice—and the air of impartiality that might be associated with the new terms—should not mask the main line of argument of this book. The arguments presented here are part of the derivational versus nonderivational debate, and they come down squarely on one side. When morphosyntactic and morpho-

phonological data are examined carefully in the domain of allomorphy, the empirical evidence in favor of the localist and serialist view—that is, for a strongly derivational model of grammar—is overwhelming.

1.1 Localism versus Globalism; Serialism versus Parallelism

This book focuses on two ways in which derivational approaches to phonological form differ from nonderivational approaches. In both types of approach, the phonology characterizes the relation between abstract underlying representations, which consist of morphemes that are grouped into words and phrases by the syntax, and surface representations that are linear sequences of segments. In the derivational approach, this relation is characterized by a *series of local* changes, each of which typically involves a single target in an environment that is locally determined. In nonderivational approaches like Optimality Theory, by contrast, neither of these restrictions holds: the relation between underlying and surface representations is not defined as the result of changes that are applied serially in local environments. To highlight these differences between approaches, the derivational approach is referred to below as *localist/serialist*, and the Optimality Theory alternative as *globalist/parallelist*.

In the contemporary theoretical context, the prevailing views in syntactic theory and in phonological theory offer strikingly different stances on the question of localism/serialism versus globalism/parallelism.

In syntactic theory, the Minimalist Program developed in Chomsky 1993 and subsequent work continues a great deal of earlier research in advancing a theory in which syntactic relations are inherently local. Particular emphasis in this approach is placed on the idea that derivations are serial. Each computational operation is given a step in a derivation, and these computational steps are ordered so that the output of one step is the input to the next. Serial derivation enforces a kind of localism, by restricting the information that is available at any particular stage of computation. This program and the theories that derive from it are *localist* and *serialist* in nature.

The phonological theory worked out in Chomsky and Halle 1968 is localist and serialist in the sense just described. However, phonological theory is at present dominated by Optimality Theory (OT) (McCarthy and Prince 1993; Prince and Smolensky 1993), which takes a *globalist* and *parallelist* view of the grammar. OT dispenses with many of the assumptions of earlier generative phonology, in which an underlying representation is subjected to a serially ordered set of rules that effect local

changes to the representation and ultimately derive a surface form. The earlier (localist and serialist) view is replaced by an architecture in which an input form is paired with a set of potential surface expressions, and a system of ranked constraints selects the winner of the competition among them. A defining property of this globalist and parallelist type of view is that the factors that force a change in the output relative to the input need not be structurally close to the locus of the alternation.

Another defining property of globalist theories like OT is that morphology and phonology are not serially related to one another, but are instead computed in the same system. This architectural premise constitutes another departure from earlier models of phonological computation. In Chomsky and Halle's (1968) theory and later versions of generative phonology, morphological processes are followed by phonological rule application. Although these distinct systems are interleaved in some theories (e.g., Lexical Phonology and Morphology, as in Kiparsky 1982), the ways in which they can interact are restricted by their serial organization.

The opposing positions defined by serialism versus parallelism and localism versus globalism are particularly acute in the domain of morphology, where current theories of (morpho)syntax and current theories of (morpho)phonology take positions that are incompatible with each other.

The morphosyntactic theory developed here, Distributed Morphology, takes a localist and serialist view of syntax and sound (and meaning as well), holding that phonology interprets the output of the syntactic derivation. In frameworks like OT, as just mentioned, morphology and phonology are computed in the same system. It is thus predicted that phonological constraints may in some cases outrank syntactic or morphological constraints, such that the morphological properties of an expression could potentially be determined by output phonology or by the global properties of surface forms, in ways that cannot be formulated in localist and serialist theories. This prediction is especially important in the domain of allomorphy, as will be made clear below.

While the theories discussed above differ in practical terms, in the sense that research in Distributed Morphology is more oriented toward syntax, and research in OT is more oriented toward phonology, they overlap considerably in terms of what they seek to explain, and it must be asked directly why they differ so fundamentally. The opposing views of grammar hypothesized by these frameworks make for a sort of schism between (morpho)syntax and (morpho)phonology. To a first approximation, this

schism suggests two possible outcomes to the research now in progress. The first is that one of the two theories is simply incorrect. The second is that they are both correct, and that morphosyntax and phonology are distinct and disconnected systems, in some profound sense. These are fundamental points, and progress can be made by comparing the different predictions made by localist/serialist and globalist/parallelist theories in key domains like allomorphy, where each has something to say.

Since the primary issue here is whether grammar functions in local terms or whether at least some global considerations play a role in computation, the terms *localist* and *globalist* are used throughout the book for the two types of architectures just outlined. These terms refer both to different types of architectures and to specific theories that can be framed within them. As the discussion unfolds, the specifics of different proposals are articulated.

In this book, one of the primary questions that is addressed is whether there is a single computation in which the morphological form and the phonological form of morphemes is determined simultaneously, with the potential for global interaction. Different types of globalist answers can be framed to this general question. A *fully* globalist theory of morphology and phonology would hold that the morphology and phonology of entire words is computed in a way that allows for interaction among structure, allomorphy, and sound—perhaps with syntax included in this computation as well (see McCarthy 2002, 142). *Limited* global interaction can also be implemented. For example, in stratal or cyclic versions of OT, only subparts of a given word are subject to simultaneous morphological and phonological computation (Kiparsky 2000 and subsequent work). While theories of this type rule out fully global interactions across entire words, they nevertheless predict that in a given cyclic domain, there should be global interaction between morphology and phonology.

In the course of examining specific theories below, I make the finer distinctions between full and limited globalism when required. The overall point, though, is that theories with even limited global interaction between morphology and phonology make very different predictions from localist theories about how phonology and morphology can interact, and this allows for direct comparison of the different frameworks.

1.2 (Phonologically Conditioned) Allomorphy

This book examines the predictions that localist and globalist theories each make for *allomorphic* interactions. *Allomorphy* in the broad sense is

a term that covers any variations in the surface form of a morpheme. Whether all such variations are the result of one type of operation in the grammar, or different operations, is something that different theories make different claims about.

As an initial example of allomorphy, consider the behavior of the past tense morpheme T[past] in English. According to a standard analysis, the default shape of this morpheme is *-d*, as in *play*, *play-ed*. As is well-known, the past tense morpheme has allomorphs besides *-d* that appear when T[past] occurs next to other verbs; putting aside changes in the phonology of the verb stem itself (such as *broke* from *break*), a rudimentary description is given in (1):

(1) Allomorphs of T[past] in English

- a. *-Ø*: hit/hit-Ø, sing/sang-Ø, break/broke-Ø, etc.
- b. *-t*: bend/ben-t, leave/lef-t, buy/bough-t, etc.
- c. *-d*: elsewhere

Allomorphic interactions of this type appear to be highly constrained. Informally, for allomorphic purposes one node sees another only when the two nodes are “close” to each other in a way that must be made precise.

The kind of allomorphy exhibited by English T[past] is *grammatically conditioned*. Knowing whether a particular verb selects a particular allomorph from (1) is something that does not follow from other factors. In particular, it is not predictable from the phonology of the verb. Rather, the conditioning element is a locally visible, grammatical object: in the case of (1), the identity of the particular verb that the node T[past] is attached to.

This kind of allomorphy is called *contextual allomorphy*. Something in the grammar specifies that the pronunciation of T[past] has one of the nondefault forms in (1) (i.e., either (1a) or (1b)) when it occurs in the *context* of a specific verb. Part of any theory of morphology is the theory of the conditions under which elements can show contextual allomorphy in this way. Part I of this book develops a localist and serialist theory of allomorphy, in which linear adjacency and cyclic locality interact to produce a constrained theory of allomorphic interaction.

A second type of allomorphy, which allows for direct comparison of localist and globalist frameworks, is *phonologically conditioned allomorphy* (see Carstairs 1988 and subsequent work). This is a type of contextual allomorphy in which the choice of a particular allomorph of some morpheme is determined by phonological factors. Some examples are given in (2):

(2) a. Korean nominative suffix

<i>Allomorph</i>	<i>Env.</i>	<i>Example</i>	<i>Gloss</i>
-i	/C__	pap-i	‘cooked rice’
-ka	/V__	ai-ka	‘child’

b. Seri passive suffix (Marlett and Stemberger 1983)

<i>Allomorph</i>	<i>Env.</i>	<i>Example</i>	<i>Gloss</i>
p-	/__V	-p-eši	‘be defeated’
a:ʔ-	elsewhere	-a:ʔ-kašni	‘be bitten’

c. Haitian Creole definite suffix

<i>Allomorph</i>	<i>Env.</i>	<i>Example</i>	<i>Gloss</i>
-la	/C__	liv-la	‘book’
-a	/V__	tu-a	‘hole’

These examples are chosen to illustrate different types of effects that are found in phonologically conditioned allomorphy, as viewed from the perspective of the output phonology of the affixed word.

In the first case (2a), Korean *-i* and *-ka*, the distribution of allomorphs could be seen as having a phonological motivation. The vowel *-i* after consonants creates syllables that are “better” than those that would be created by affixing *-ka* to such forms, on the assumption that the sequence CVCV is preferred to, say, CVCCV. Similarly, affixing *-ka* to vowel-final hosts avoids the hiatus that would be created by affixing *-i*. In this sense, it might appear that the “morphological” choice of allomorphs is driven by the output phonology, in a way that fits nicely with a globalist phonological theory in which syllable-structure markedness constraints that favor CV- syllables without codas can determine allomorph selection.

The behavior of the Seri passive morpheme in (2b) is ambiguous. The prevocalic form *p-eši* supports the idea that affixation should produce sequences of an optimal kind. However, preconsonantal forms like *a:ʔ-kašni* are not phonologically optimal. In terms of the phonological forms that the language happens to provide for realizing the passive morpheme, however, the distribution of allomorphs could be seen as phonologically optimal; that is, while *a:ʔ-* does not produce optimal syllables with C-initial hosts, it produces better phonological forms than would be created by affixing *p-*.

Finally, the Haitian Creole allomorphy is “perverse” from the perspective of syllable-structure markedness. Affixing *-la* to consonant-final hosts creates syllable codas, and affixing *-a* to vowel-final hosts creates hiatus between syllables. Both of these results are nonoptimal, and both of these

problems would disappear if the reverse distribution of allomorphs obtained.

Intuitively, phonologically conditioned allomorphy is important as a case study because it involves the interaction of morphological and phonological factors in determining a form.

In the localist theory developed in part I of this book, all the cases of contextual allomorphy seen above receive the same analysis. The theory says that the phonological realization of a morpheme, which occurs in a process called *Vocabulary Insertion*, can be sensitive to items that are in the local environment of the morpheme being spelled out. While this theory can account for the distributions in (2), it cannot say *within the grammar itself* that these distributions happen for a reason—that is, that they are driven by surface phonological optimization. This theory can generate the forms that it derives mechanically, but it does so without reference to ultimate output forms; in this sense, it is a theory of morphology without teleology.

In globalist theories like Optimality Theory, the architecture allows phonological constraints to determine allomorph selection. The reason for this is that morphology and phonology are one system, in which phonological constraints can outrank morphological ones. It is therefore possible in such theories to say that allomorph selection—part of the morphology—happens the way it does *because* of the way that affixation creates particular phonological patterns. In the Korean case (2a), for example, it is possible to give an analysis in which the competing candidates consist of the host plus each of the different allomorphs, so that both *pap-i* and *pap-ka* are generated for the input “nominative of *pap-*.” The constraint ranking—and phonological constraints governing syllable structure in particular—then work together to derive the pattern of allomorph selection. In such a theory, it is possible to say *in the grammar* that the distribution of allomorphs is the way it is for a reason.

1.3 Surface Forms, Competition, and the Schism

Taking grammars to be theories of how sound-meaning connections are derived, one can ask at a very general level what different theories have to say about the factors that may play a role in determining the surface form of an expression.

OT implements global and parallel computation by generating an infinite set of output candidates for any given input, with constraints selecting a winner from these competitors. The output candidates differ from

the input in ways that potentially involve more than one phonological “change.” This computation of forms is global in at least two ways: first, because it is antimodular, phonological and morphological constraints can interact in a manner that is not possible in alternative theories; and, second, because the constraints can be ranked in such a way that nonlocal interactions take place within a word.

The central principle that allows output forms to be compared for well-formedness is *competition*. Competition is a fundamental concept in grammatical theory. It is implicated in morphological discussions in the study of *blocking* effects, initiated in the modern era in work by Aronoff (1976). According to Aronoff, for example, the word **gloriosity* is derived by the rules of the grammar, but it cannot be the “abstract noun for GLORY” because *glory* exists and blocks it. For this analysis to work, the grammar must supply more than one object for the potential expression of a particular meaning (in this example, both **gloriosity* and *glory*), and it must supply a means of determining the winner of the competition between them.

Part of the OT program is based on the idea that surface forms are the way they are for a reason, and that the grammar must state these reasons directly. For this idea to be implemented, competition is required. From the infinite set of possible output forms, the winner is the one that is optimal with respect to the constraint ranking. If there were not multiple competitors—if the grammar made just one representation available in any given computation—then there could be no “optimization.”

The potentially global interactions mentioned above are a consequence of this type of infinite competition. The fact that phonological and morphological constraints interact to select a winner means that in principle, phonological properties of surface forms could determine what happens morphologically, by forcing a particular affix to be selected because of its effects on the phonology of the whole word.

The globalist perspective on phonological form is incompatible with the view of the grammar that is advanced in localist morphosyntactic theories like Distributed Morphology. The prevailing view of “blocking effects” in the broad sense is that they require competition of the type outlined by Aronoff. More recent work argues that there is no blocking of the type discussed above; this is the conclusion presented in Embick 2007a and Embick and Marantz 2008. These papers examine arguments for blocking among words and larger expressions, and they conclude that there is no motivation for a competition-based analysis of such phenomena. Rather, put somewhat simply, what surfaces in the grammar is what

is derived by the grammar; other putative competitors for a particular meaning are simply never derived and therefore do not need to be blocked. In particular, on this view, the grammar of English does not generate **glorios-ity* any more than it creates **good-ity* or **bad-ity*.

According to the theory proposed in Embick and Marantz 2008, competition is strictly local: it is restricted to the procedure that determines the phonology of a single node, the Vocabulary Insertion operation mentioned above. A consequence of this view is that there is no competition among complex objects—that is, no word/word, word/phrase, or phrase/phrase competition. In short, complex objects are assembled in syntactic structures, and this fact accounts for both how they are represented and how they are distributed.

This localist theory has consequences for phonological relatedness, especially the shared properties of *lexically related* forms like *plays*, *played*, and so on, where it places a number of restrictions. Specifically, the theory says that the phonological form and phonological relatedness are determined by the following factors:

- Complex, lexically related forms are built in syntactic structures and contain the same Root.
- In a given structure (with a Root and functional heads), a single output is derived; this output is what exists and therefore what must be used in that grammatical context.
- Complex, lexically related forms share phonological material in a consistent way because
 - they are based on the same Root, which has a given underlying representation (UR);
 - they appear in syntactic structures whose heads have consistent phonological expression (up to allomorphy); and
 - the phonology involves the same rules/constraints (up to exceptionality that must be listed).

The particular restrictions imposed by these factors are directly related to the fact that this theory involves no competition among complex objects. In any derivation, only one output object is produced. It is thus not possible to generate multiple competitors and select a winner based on properties of the output. This precludes, among other things, generating a word with all of the different allomorphic possibilities the language allows and then choosing the winner on the basis of, say, phonological well-formedness.

This localist view contrasts sharply with some basic aspects of the globalist program. The essence of globalism as manifested in OT is unlimited competition, and the essence of competition is that there must be multiple possible outputs for any given input. This is exactly what the localist morphosyntactic theory says is impossible. Putting these different incompatibilities into focus, it is clear that these views of morphosyntax and morphophonology define a schism:¹

(3) The schism

Globalist theories of morphophonology require competition between multiple potential expressions of a given input. According to the localist morphosyntactic theory, this is impossible because the competitors are not derived by the grammar.

This book brings empirical arguments to bear on the large-scale architectural matters implicated by (3). As mentioned in section 1.1, there are two possible outcomes that could stem from focus on the schism, and each of them is significant.

The first possible outcome is that (morpho)phonology is simply profoundly different from (morpho)syntax. In principle, it is possible to construct a theory in which each of the two views above is correct: that is, “no competition” is correct for morphosyntax, and “competition” is correct for morphophonology. In such a theory, the syntax and the morphology operate in terms of local, serial derivations, but the output of this system in some part of the phonological computation involves multiple or infinite competitors, so that global considerations can play a role in determining surface forms. One question to ask is whether this would be a sort of “worst case” scenario, architecturally speaking, since it would divorce the system of combinatorics from the system for computing sound forms in an extreme way.

The second possible outcome of the schism is that either the localist theory or the globalist theory is untenable: that is, either (i) the “generative” localist view of (morpho)syntactic theory is incorrect, or (ii) the globalist, competition-based theory of (morpho)phonology is incorrect.

These are large points, and they resonate with other aspects of grammatical theory in numerous ways.

This book is divided into two major components. Part I develops a localist theory of allomorphy. Part II explicitly compares the predictions of globalist theories with the core predictions of the localist theory of part I. The fundamental results are that the localist theory of part I makes

correct predictions about allomorphy in natural language and that the predictions of globalist theories examined in part II are not supported by the data.

1.4 Prospectus: A Localist Theory

Part I of this book articulates a localist theory of contextual allomorphy. The defining property of this theory, a version of Distributed Morphology, is that patterns of contextual allomorphy are restricted by both phase-cyclic and linear notions of locality.

Contextual allomorphy in Distributed Morphology results from the operation of *Vocabulary Insertion*. This is a procedure by which morphemes in a syntactic structure are assigned a phonological form. I assume that morphemes are terminals in a syntactic structure. Some of these morphemes, the functional heads, have no phonological form as part of their underlying representation. Rather, these morphemes receive phonological content in the PF (Phonological Form) component of the grammar. This is the role of Vocabulary Insertion; individual *Vocabulary items* (VIs) compete for insertion at a given node, and the most specific one that can apply gives that node its phonological matrix.

In the example of the English past tense, the syntax generates a structure that contains the past tense node T[past]. In the PF computation, the VIs in (4) compete for insertion into this node:

(4) Vocabulary items for Tense

$$\begin{aligned} \text{T[past]} &\leftrightarrow -t/_ \{ \sqrt{\text{LEAVE}}, \sqrt{\text{BEND}}, \dots \} \\ \text{T[past]} &\leftrightarrow -\emptyset/_ \{ \sqrt{\text{HIT}}, \sqrt{\text{SING}}, \dots \} \\ \text{T[past]} &\leftrightarrow -d \end{aligned}$$

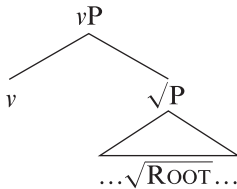
When Roots like $\sqrt{\text{BEND}}$ and $\sqrt{\text{HIT}}$ are present, Vocabulary Insertion inserts *-t* and *-\emptyset* into the T[past] node, respectively; in other cases, it inserts the default *-d*.

The general research question that motivates this work centers on the factors that play a role in contextual allomorphy. According to the view developed below, possible patterns of allomorphy are determined by the interaction of two distinct (and independent) sets of locality constraints. The core intuition is as follows. Contextual allomorphy, where one node *X* can see another node *Y* for the purposes of Vocabulary Insertion, is possible only when *X* and *Y* are concatenated—that is, in the most local *linear* relationship possible. A further set of restrictions on allomorphic locality is imposed by the assumption that syntactic derivation proceeds

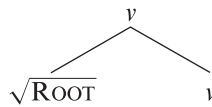
in terms of *phases* (in the sense of Chomsky 2000, 2001) that are spelled out cyclically. Phase-based derivation places sharp constraints on the amount of information that is available in a particular cycle of PF computation, and it restricts potential allomorphic interactions accordingly.

The key elements of this proposal can be outlined in a few steps, beginning with the cyclic (phase-based) aspect of the theory. For cyclic derivation, the theory presented below assumes with Marantz 2007 and Embick and Marantz 2008 that *category-defining* heads like *v*, *n*, and *a* define phases. According to this view, heads of this type *categorize* the elements that they attach to. For example, a head *v* that is merged syntactically with a \sqrt{P} headed by a category-neutral $\sqrt{\text{ROOT}}$ creates a vP (5); when the Root and the *v* head are combined into a single complex head as shown in (6), the result is a “verb”:

(5) *v* merged with \sqrt{P}



(6) Complex head



The category-defining heads are *cyclic* in the sense of phase theory. What this means is that when they are merged with a structure, they trigger *Spell-Out*: the operation that sends part of the syntactic structure (to be defined below) to the interface components PF and LF (Logical Form). Other heads that appear in complex words, such as tense morphemes and plural morphemes, are not cyclic in this way. This difference between cyclic and noncyclic heads is manifested in many domains, including possible allomorphic interactions.

The example in (5)–(6) shows a single cyclic head *v* attached to a Root. Category-defining heads may also be merged with structures that are already categorized. For example, a verb like *break*, which is a Root combined with *v*, may be combined with a “potential” adjective head *a* to yield *breakable*, an adjective derived from a verb, as shown in (7):

(7) $[[\sqrt{\text{BREAK}} v] a]$

When a category-defining head is the first that is merged with a Root, as is the case with *v* in (5) and (7), this head is said to be *Root-attached*, or in the *inner* domain. When a category-defining head is attached to a structure that has already been categorized, like the *a* in (7), the additional cyclic head is said to be in the *outer* domain.

A central idea in linguistic theory is that cyclic domains define possible interactions in syntax, phonology, and semantics. One proposal that has been discussed in the literature is that syntactic configurations in which a Root is merged with a category-defining head—the inner domain—appears to be special for the purposes of both sound and meaning. In Embick and Marantz’s (2008, 11) formulation, the generalizations about what is special about this inner domain are these:

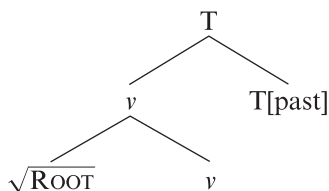
(8) Cyclic generalizations

- a. *Allomorphy*: For Root-attached x , special allomorphy for x may be 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.
- b. *Interpretation*: The combination of Root-attached x and the Root might yield a special interpretation. When attached in the outer domain, the x heads yield predictable interpretations.

For the purposes of a localist account of allomorphy, what (8a) highlights is the possibility that contextual allomorphy could be found only with Root-attached cyclic nodes.

An important discovery in this context is that a “Root-attached” theory of contextual allomorphy is too restrictive. This point was discussed with reference to allomorphy in participles in Embick 2003, and it arises in cases like the English past tense as well. English past tense verbs have a structure consisting of a Root, a v head, and the node T[past]:

(9) English past tense



The T[past] node shows contextual allomorphy, yielding the familiar allomorphs in (e.g.) *ben-t* and *hit-Ø* versus the default *-ed* in (e.g.) *play-ed*. Crucially, the T[past] node is not Root-attached; nevertheless, it shows irregular allomorphy conditioned by the Root, contrary to what is predicted by (8a). Importantly, T[past] is not a cyclic head.

The conclusion that emerges from such examples is that the theory of contextual allomorphy must allow at least some outer heads to have their

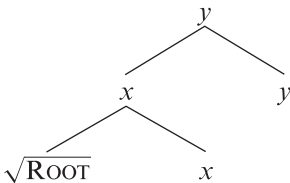
form determined by the Root. The challenge is therefore to present a theory that is capable of accounting for the attested patterns of contextual allomorphy, while being restrictive enough to make strong empirical predictions.

Part of the work presented in part I sharpens the empirical questions that are at the heart of this discussion. While the type of case represented by the English past tense shows that a head outside of the inner cyclic head may show Root-determined allomorphy, the possibilities for allomorphic interaction are still restricted in significant ways. The restrictions are of two types.

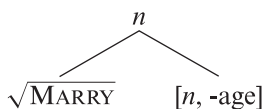
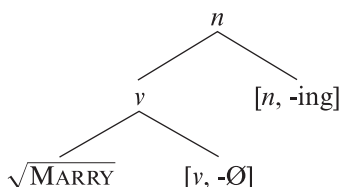
First, it appears that a morpheme can show contextual allomorphy determined by another morpheme only when these two pieces are linearly adjacent to one another, that is, when no overt morpheme appears between the two. This generalization suggests a strict linear constraint on allomorphic interactions.

Second, although the cyclic theory based on (8a) is too restrictive, cyclic structure is still relevant for allomorphic interactions. This is clear from another fact: it appears that outer cyclic heads cannot show contextual allomorphy that is determined by elements in the domain of an inner cyclic head. For example, in a “category-changing” structure with two cyclic heads x and y like (10), the outer cyclic head y never shows Root-determined allomorphy:

(10) Structure with two cyclic heads



An example of this is provided by English gerunds, like *John's destroying the files*. Unlike special nominals, like *laugh-ter*, *marri-age*, *destruction*, and so on, where nominalization involves different suffixes (i.e., a great deal of Root-determined allomorphy), gerunds always take the suffix *-ing*: *laugh-ing*, *marry-ing*, *destroy-ing*, and so on. In special nominals, the n head realized as *-ter*, *-age*, *-(t)ion*, and the like, is Root-attached. In gerunds, on the other hand, the nominalizing n morpheme attaches to structure that is verbalized by v . The structures at play here are those in (11) and (12):

(11) *marriage*(12) *marrying*

The outer *n* in (12) shows no Root-determined allomorphy: it always has the phonological form *-ing*, even though it is superficially adjacent to the Root. This pattern seems to be completely general: that is, there are evidently no cases in which an outer cyclic head shows Root-determined allomorphy.

There is thus an asymmetry between noncyclic and cyclic heads in allomorphy: outer noncyclic heads can see across an inner cyclic node, but outer cyclic heads cannot; in this way, (8a) is correct, but only for cyclic heads. The important generalizations are schematized in (13), where lowercase *x*, *y* are cyclic heads, uppercase *Z* is a noncyclic head, and *a* represents the element that conditions the allomorphy:

(13) a. ... α] *x*] *Z*]

Generalization: Noncyclic *Z* may show contextual allomorphy determined by *a*, as long as *x* is not overt.

b. ... α] *x*] *y*]

Generalization: Cyclic *y* may *not* show contextual allomorphy determined by *a*, even if *x* is not overt.

The asymmetry in (13) presents a basic empirical challenge for a restrictive theory of allomorphy: not only must the cyclic theory be extended to allow cases like (13a), but also the extension must be executed in such a way that outer cyclic heads as in (13b) cannot be sensitive to elements in *x*'s complement.

The theory of part I proposes that the key generalizations are accounted for by a theory based on the hypotheses (H1) and (H2):

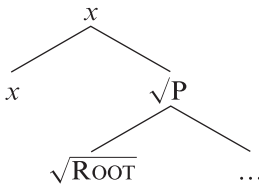
(H1) Contextual allomorphy is possible only with elements that are concatenated.

(H2) Cyclic Spell-Out domains define which nodes are present in a given cycle of PF computation and thus potentially “active” (capable of being referred to) for the purposes of contextual allomorphy. In some cases, superficially adjacent nodes cannot influence each other allomorphically because in terms of cyclic Spell-Out, they are not active in the same PF cycle.

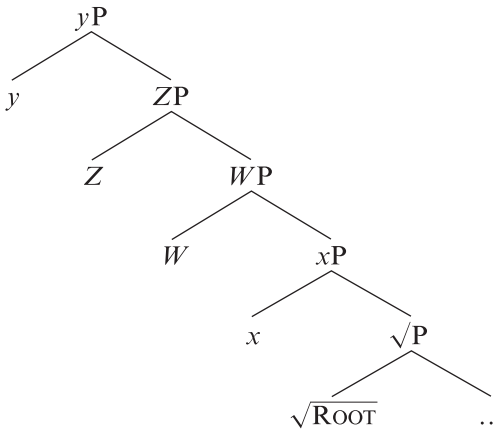
The linear condition in (H1) is straightforward: it holds that one node can show contextual allomorphy determined by another node only when the two are immediately next to one another, that is, when no morpheme intervenes.

The essential properties of the cyclic part of the theory, (H2), can be illustrated with reference to (14) and (15), where lowercase x , y are cyclic heads and uppercase W , Z are noncyclic heads. (14) shows the constituent structure prior to affixation, and (15) the complex heads that are created in the structures in (14):

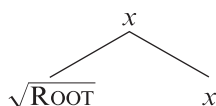
(14) a. Structure 1



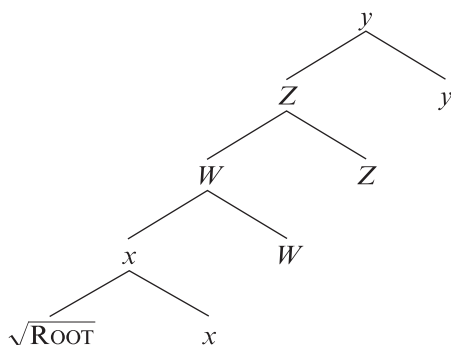
b. Structure 2



(15) a. Complex head created in structure 1



b. Complex head created in structure 2



The basic premise of the theory is that cyclic heads trigger Spell-Out; in particular, when a cyclic head is merged, it triggers the Spell-Out of cyclic domains in its complement. With reference to (14) and (15), this means that when x is merged syntactically in (14a), there are no cyclic domains in the complement of x , so that there is no Spell-Out in this particular case.

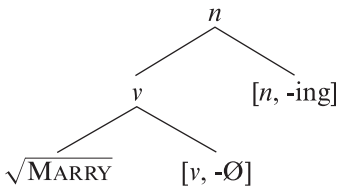
A subsequent step in the syntactic derivation, (14b), merges noncyclic W and Z . When the head y is merged, the Spell-Out of cyclic domains in y 's complement is triggered. In this example, this means that the cyclic domain headed by x is spelled out and, in particular, that a PF cycle is run on this cyclic domain. The cyclic domain headed by x includes the Root, x , and the noncyclic heads W and Z . In this cycle, Vocabulary Insertion occurs at x , W , and Z , giving phonological form to these morphemes. Since all of these heads are co-present in the same PF cycle, any one of them could potentially show Root-determined allomorphy, as long as no overt morphemes intervene.

Later in the derivation, another cyclic head (not shown in (14) and (15)) triggers Spell-Out of material in its complement, which includes the phase centered on y . The elements that are present in this PF cycle are x (the *edge* of the xP phase), W , Z , and y . Crucially, while y could show contextual allomorphy determined by x , W , or Z , it could not show Root-conditioned allomorphy. The reason for this is that the PF cycle in which

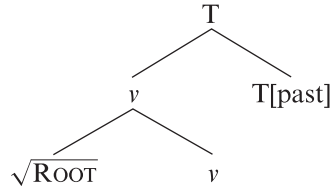
y is given phonological form does not involve the Root; it (and other elements that could be in the complement of x) are derivationally closed off.

The principles just outlined account for the asymmetries in (13). This point can be seen by comparing the structure for a gerund with that of a past tense form:

(16) Gerund *marrying*



(17) English past tense



When the n head in (16) undergoes Vocabulary Insertion, it is in a PF cycle that does not contain the Root $\sqrt{\text{MARRY}}$. Thus, this outer cyclic head cannot show Root-determined allomorphy. In the past tense structure in (17), on the other hand, the $T[\text{past}]$ head undergoes Vocabulary Insertion in a PF cycle in which the Root is present. Thus, this head can show Root-determined allomorphy, as long as it is linearly adjacent to the Root.

The cyclic aspect of the theory restricts the amount of information that is available to condition allomorphy in two ways. First, in a complex word that contains multiple cyclic domains, the computation of the phonological form of inner domains takes place at a stage when “outer” material is not present. This outer material can therefore play no role in determining the phonological form of inner nodes. Second, for computation on outer cyclic domains, certain parts of the inner material are inaccessible, because they are closed off in the way outlined above. As a result, there are cases where outer cyclic nodes cannot be influenced by certain nodes in the inner domain, further restricting potential allomorphic interactions.

In sum, the guiding insight of the theory presented here is that the interaction of (phase-) cyclic domains and a strict linear notion of locality are responsible for possible patterns of contextual allomorphy. Reflecting the interaction of cyclic and linear factors, the approach advanced in chapter 2 is called the \mathbb{C}_1 -*LIN* theory, where \mathbb{C}_1 stands for the cyclicity condition and *LIN* stands for the linear condition.

After developing the details of this theory in chapter 2, I present illustrations and consequences of the approach in chapter 3. This includes a

discussion of (linear) intervention effects and cyclic edge effects, along with a series of more complex case studies examining how “the same” pieces of morphology can appear in different cyclic domains. I also comment on how morphosyntax and morphophonology interact in the theory, paving the way for some aspects of the comparison between frameworks in part II.

1.5 Prospectus: Localism versus Globalism

Part II of this book returns to the fundamental tension between localist morphosyntax and globalist phonology outlined earlier in this chapter, by looking at the empirical predictions that these theories make for allomorphy.

Returning to some of the themes introduced in the first part of this chapter, the morphosyntactic theory developed in part I of the book restricts competition in the grammar to allomorphy of a single node: this is the process of Vocabulary Insertion. The theory thus disallows competitions in which multiple competitors like “words” are derived and compared for well-formedness. This effectively restricts the factors conditioning a case of contextual allomorphy to elements in the immediate context of the node being spelled out.

This view differs fundamentally from that offered by a globalist theory of the type assumed in much current work on phonology. In a theory like OT, in which the grammar generates an infinite number of candidate expressions that are potential surface realizations of a given input, the inputs are complex; that is, they involve more than one morpheme. Thus, this theory is responsible for morphology as well as phonology. Since morphological and phonological properties are determined in the same computational domain, this type of framework allows for global interactions in which, for example, nonlocal properties of surface forms play the defining role in allomorphic selection.

The full range of predictions that separate the localist and globalist views on allomorphy emerge from examining these closely interconnected questions:

- *Global morphology/phonology interactions:* Is there evidence that morphology and phonology are computed in a single, global/parallel system (*global-MP*)? Or do the facts on interaction suggest an organization in which phonology acts on the output of allomorph selection, as in the localist theory?

- *Phonological Selection*: Is there *Phonological Selection*, in which surface phonological well-formedness forces a choice among allomorphs, such that phonology drives allomorphy in ways that are impossible in a localist theory?
- *Global considerations over local*: Is there evidence that the factors determining allomorphy are global in any sense? That is, are there cases in which localist and globalist approaches make different predictions about which allomorph should be chosen for a particular position, and the globalist considerations win out, in a way that cannot be stated in a localist theory?

Part II of the book begins in chapter 4 with the answers to these questions that derive from globalist theories. The discussion centers on the types of arguments that could conceivably provide evidence for such an architecture. While the emphasis in this discussion is on empirical arguments, some steps are taken to frame the important issues with reference to conceptual arguments found in the literature. As discussed in section 1.2 with regard to examples of allomorphy from Korean, Seri, and Haitian Creole, a localist theory cannot say that a pattern of allomorph selection arises *because of* some output property, phonological or otherwise. To the extent that there are generalizations to be made about surface forms, the localist theory can make them, but they must be derivative of another part of language in the broad sense. That is, the explanations cannot be part of the grammar in the narrow sense; instead, they are the result of diachrony, acquisition, and so on.

As noted in section 1.2, these considerations lead to a kind of conceptual argument that is often advanced in favor of globalist theories. In theories of this type, it is possible to say that patterns of allomorphy happen *for a reason*, within the grammar. For example, the case of Korean *-i/-ka* allomorphy can be treated in terms of syllable structure constraints. An OT analysis can then say that the (phonological) grammar forces the attested distribution of allomorphs and, moreover, that the grammar *explains* the distribution by having morphological selection driven by optimization of the phonology of the output. The charge that is leveled against localist theories is that, while they might account for the distribution of allomorphs, they do not provide (within the grammar) a reason for the distribution. This type of argument against localist theories is based on their *putative loss of generalization*. In the domain of phonological rules, the question of whether localist theories are missing generalizations about outputs has been actively discussed since at least Kisseberth

1970. The same kind of considerations about patterns in surface forms motivate globalist views of morphology-phonology interactions, and allomorph selection in particular.

In many cases that have been studied in the literature, localist theories and globalist theories are both able to account for the facts. In such cases, only conceptual arguments, such as appeal to putative loss of generalization, can be deployed against a localist theory; there is no empirical basis for determining which of the two frameworks is to be preferred. Rather, the choice reduces to whatever combination of conceptual, aesthetic, or other factors regulate the intuitions that individual researchers have about what explains what. Such nonempirical arguments are not decisive. A key point that moves the argument presented here from the conceptual to the empirical is that globalist theories predict a number of types of global interaction that simply cannot be expressed in the localist theory. The comparison of frameworks must be directed at such cases.

The decisive predictions are examined here in two steps. Chapter 5 begins by outlining the best-case scenario for globalist theories: the hypothesis that the phonological grammar determines all cases of phonologically conditioned allomorphy (PCA), and nothing more needs to be said about allomorph distribution. This position was shown to be incorrect in early works exploring the globalist research program like Kager 1996. However, the possibility remains that there are *some* instances in which surface phonology drives allomorph selection, in ways that cannot be analyzed in a localist framework.

To highlight the empirical issues, and the motivation behind the globalist program, chapter 5 then examines *systems* of PCA. This part of the discussion is not a formal argument against globalism or for localism. Rather, it examines the intuition that globalist theories are based on: the idea that patterns of PCA are the way they are for reasons that should be expressed in the grammar, and that these reasons should be phonological in nature. The empirical basis for this chapter is provided by systems of case endings found in two Australian languages, Djabugay and Yidj, where there is a large amount of PCA. Although examining isolated subparts of such systems might make it look like there is motivation for a globalist theory in which output phonology determines allomorph selection, this impression is shown to be illusory once the systems are analyzed in detail. The particulars of the analysis show that the case systems in these languages derive from the interaction of stored information about the shape of morphemes with (sometimes exceptional) phonological and morphological rules, in a way that implicates serial organization between

morphology and phonology. A further argument, extending this, is that although at first glance Yidj case allomorphy looks as though it might be driven by simple phonological constraints, analyzing the system in surface-based terms obscures key generalizations about other aspects of the language's morphophonology.

Chapter 6 is centered on the fact that theories with even a restricted form of global interaction between morphosyntax and phonology predict effects that cannot be stated in a localist theory. These effects can be seen in cases in which a morpheme X has more than one phonologically conditioned allomorph—say, x_1 and x_2 —and X appears in words with other morphemes like Y and Z :

(18) Root- X - Y - Z

There are cases of this type in which the *local* environment predicts insertion at X of the x_1 allomorph, while the *global* environment, because of the phonological properties of the entire word, predicts insertion of the x_2 allomorph.

In a localist theory of the type developed in part I, choice of allomorph at X must be determined by grammatical or phonological information that is visible at the point when insertion occurs. Thus, the localist theory predicts that in cases like (18), the locally selected x_1 allomorph will be found.

On the other hand, in a globalist theory in which morphology and phonology are computed in the same system it is possible for the x_2 allomorph to be inserted, in a way that is driven by the output phonology. This prediction is not the exclusive property of “full” globalist theories. Even restrained, cyclic globalist theories make the same prediction, as long as the affixes in question are not in different strata. That is, the prediction that Z 's form (or the form of the entire word) could affect allomorphy at X is made by any theory in which the computation of the morphophonology of X , Y , and Z occurs in the same domain.

The allomorphy of perfect heads in certain Latin verbs, discussed in Mester 1994, provides an example of the type schematized in (18). The perfect head in question has two allomorphs: *-u*, generally taken to be the default, and *-s*.² Mester argues that choice between these allomorphs is determined by the prosodic structure of affixed words. Specifically, the nondefault *-s* allomorph is inserted only when the *-u* allomorph creates a form with an unfooted medial syllable, called a (medial) *trapping* configuration. The idea is that the prosodic undesirability of trapping is what drives the insertion of the nondefault *-s* allomorph with certain verbs.

The effects of this analysis are shown for the verbs *monēre* ‘warn’ and *augēre* ‘grow’ in (19). These verbs differ in the metrical weight of the stem (light *mon-* versus heavy *aug-*), which results in different metrical parses with the *-u* affix. As seen in (19a) versus (19b), these verbs show different allomorphs of the perfect head:

- (19) a. Perfect allomorph: *-u* with light Root
 [monu]⟨ī̄⟩
 b. Perfect allomorph: *-s* with heavy Root
 *[au]gu⟨ī̄⟩ (trapping)
 [aug]⟨sī̄⟩

According to the globalist theory advanced by Mester, the perfect morpheme has its allomorphy determined by the output prosody of the word. The grammar generates both *auguī* (with the default *-u* allomorph) and *augsī* (with the *-s* allomorph) and prefers the latter because of its surface phonological form.

In cases of this type, the globalist theory predicts—unlike the localist theory—that the allomorph choice for the perfect may vacillate, depending on the phonological properties of outer affixes. In the Latin example, the globalist theory predicts that in pluperfects like those in (20), the allomorph selected for *augēre* should switch from *-s* to *-u*, because this yields a better prosodic structure (20b). In fact, this does not happen; the grammatical form has the *-s* allomorph as in (20a), even though this creates trapping:

- (20) 1sg pluperfect of *augēre*
 a. With *-s* allomorph:
 augseram = [ō̄]ō̄⟨ō̄⟩
 b. With *-u* allomorph:
 *augeram = [ō̄][ō̄ō̄]⟨ō̄⟩

In this and other cases, the locally determined allomorph is selected, and there is no evidence for the type of global interaction—allomorph vacillation based on output phonology—that would provide evidence for globalism.

The general line of argument in chapter 6 is that any sort of interaction of the type outlined above would be an argument for a globalist view, but that no such interactions are found. In cases where this type of prediction can be tested, languages show local determination of allomorphs of the type predicted by the localist theory.

As stressed above, the differences in predictions between globalism and localism are clearest when a “fully” globalist position—one with interacting syntax, semantics, phonology, and so on—is considered, but cyclic theories with limited global interaction also make predictions that go beyond what the localist theory allows. The arguments advanced in this book extend to theories with even highly restricted forms of global interaction: there is no evidence for global interaction in even the restricted form that could be stated in a cyclic OT theory.

1.6 Implications

Chapter 7 synthesizes the consequences of parts I and II of the book. If the localist theory of part I is correct, then allomorphy is subject to strict locality conditions of a type that derive from a localist syntactic theory.

If the conclusions of chapters 5 and 6 are correct, then there is nothing beyond cyclic and linear locality in the grammar of allomorphy; in particular, there are no empirical arguments for the strong predictions of globalism. This point has implications for the status of generalizations about surface forms, along the lines of what was discussed under the heading of *putative loss of generalization* above. To account for why certain patterns of allomorphy occur, a theory must have global interactions between morphology and phonology. It is only in such a theory that the grammar can refer to properties of output forms in the allomorph selection process. However, theories with this type of globality make formal predictions about morphology-phonology interactions that are not borne out. Taken as a whole, the facts discussed here thus constitute an argument against the globalist architecture *and* an argument against the idea that the grammar itself must say why certain patterns of allomorph selection are found.

A second implication of this argument is that OT is a theory of phonology without a theory of morphology. There are many potential responses to this line of argument, and almost all of them have deep consequences for theories of grammar. One obvious response would be to hold that there are fundamental differences between morphosyntax and (certain aspects of) phonology, and OT is a theory of the latter. Another possibility is that the type of globalist system espoused by OT must be abandoned, or modified in some extreme way. Importantly, since incorrect predictions about allomorphy appear to arise even in systems with a limited amount of global interaction, appealing to stratal or serial versions of OT either does not appear to be an adequate response, or results in a theory that is essentially localist and serialist in nature.

The central importance of cyclicity, locality, and serial organization is a theme that characterizes this entire work. These are, of course, the central principles that emerged in early work in generative grammar, and I take this work to show empirically that these notions must be at the heart of the theory of morphology-phonology interactions, and grammatical theory more generally. The particular emphasis in this book is on allomorphic phenomena, but the results presented here have ramifications that go beyond this area. While it would always be possible to try and avoid the conclusions of this work by, for example, holding that part of phonology is “special,” my view—a research intuition—is that the success of the localist theory of morphosyntax and morphophonology motivates a return to a phonological theory in which the sound form of complex expressions is linked as closely as possible to the generative procedure that builds them. This work is a step toward making this intuition concrete.

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