[REVIEW]

Universals in Comparative Morphology: Suppletion, Superlatives, and the Structure of Words


TAKUMI TAGAWA
University of Tsukuba*

Keywords: comparative, typology, suppletion, Distributed Morphology, locality

1. Introduction

Linguists who work in fields neighboring morphology often say that morphology is messy—and although it is true in a sense, morphologists have discovered many regularities in various fields of morphology. Suppletion, which is addressed in the book under review, has traditionally been one of the messiest or most irregular phenomena in morphology.

Bobaljik’s book unveils new regularities in suppletion, posits a universal mechanism behind them, and demonstrates that there is a way of exploring suppletion from the viewpoint of formal linguistic theory. In other words, the “universals” that this book demonstrates are both empirical and theoretical. The book’s two main purposes are to provide 1) a typological study of comparative and superlative morphology and morphosyntax; and 2) a study of theoretical morphology taking advantage of Distributed Morphology (henceforth DM), a formal morphological theory in generative linguistics (Halle and Marantz (1993)).¹ The latter aspect is the most noteworthy element of the book, which has a large impact on not only generative but also general linguistics, shown by the fact that the book was recently awarded

* Thanks are due to Jonathan David Bobaljik and Ryo Otaguro for reading the draft and making thoughtful comments. I would also like to thank two anonymous reviewers for their constructive suggestions. This work was supported in part by JSPS KAKENHI Grant Number 25770171.

¹ Comparative and superlative morphology has recently received considerable attention and been the focus of intriguing findings in theoretical morphology, specifically Distributed Morphology (Embick and Marantz (2008)).
the 2014 Leonard Bloomfield Book Award by the Linguistic Society of America.²

This review is organized as follows. In section 2, I will introduce some generalizations about suppletion in comparative and superlative morphology. In section 3, I will summarize the theoretical accounts of these generalizations using DM. In section 4, I will discuss two problems that the analyses address: one related to the study of Cycle-Sensitive Allomorphy and one related to the content of the Root node. Section 5 gives a brief evaluation of the book. Mainly for reasons of space, I will focus on the theoretical aspects of Bobaljik’s book in this review.

2. Basic Generalizations

One of the main purposes of Bobaljik’s book is to investigate whether certain generalizations about comparative and superlative morphology are compatible with more than 300 languages. The first generalizations Bobaljik considers are a set of two that together describe a relation between suppletion in comparative morphology and suppletion in superlative morphology.

(1) The Comparative-Superlative Generalization, part 1 (CSG1)
If the comparative degree of an adjective is suppletive, then the superlative is also suppletive (i.e., with respect to the positive).

(2) The Comparative-Superlative Generalization, part 2 (CSG2)
If the superlative degree of an adjective is suppletive, then the comparative is also suppletive (i.e., with respect to the positive).

The CSG1 and the CSG2 are the core of the morphological and morphosyntactic analyses in this book. They are supported by the crosslinguistic paradigm below. Note that because English does not have pattern (3c), a Latin example is provided; few languages in fact have this pattern.

<table>
<thead>
<tr>
<th>(3)</th>
<th>POS</th>
<th>CMPR</th>
<th>SPRL</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Regular</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>b.</td>
<td>Suppletive</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>c.</td>
<td>Doubly-suppletive</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>d.</td>
<td>Unattested</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>e.</td>
<td>Unattested</td>
<td>A</td>
<td>A</td>
</tr>
</tbody>
</table>

Bobaljik maintains that the absence of patterns (3d) and (3e) is not an accidental gap but a systematically motivated omission. The CSG1 covers (3d) and the CSG2, (3e) respectively.

In morphology, absence of a form is often difficult to employ as positive evidence because morphological phenomena always need to face the problem of lexical or accidental gaps. Bobaljik tries to overcome this difficulty by using a very large amount of typological data. This approach appears to be successful as far as comparative and superlative morphology is concerned.

The second set of generalizations concern relations between (either comparative or superlative) suppletion and the synthetic/analytic distinction.

(4) The Synthetic Superlative Generalization (SSG)

No language has morphological superlatives (X-est), but only periphrastic comparatives (more X).

(5) The Root Suppletion Generalization (RSG)

Root suppletion is limited to synthetic (i.e., morphological) comparatives. (p. 3, (3) and (4))

The SSG predicts that there will not be combinations like *long-more long (analytic)-longest (synthetic). The RSG says that a pattern like *good-more bett (analytic) is impossible. Although both these generalizations relate to the lack of certain pattern, they are also well attested by a great deal of typological data.

“Lesslessness” is a generalization about the lack of a pattern schematized as more X: X-er:: less X: *. That is, there is no language that has synthetic morphology (i.e., a suffix) corresponding to less.

(6) Lesslessness

No language has a synthetic comparative of inferiority. (p. 4, (5))

Finally, the generalization below is about a relation between comparative morphology and the morphology of deadjectival verbs, as in bad-worse-worsen (*badden). Though this generalization is weaker (there are apparent exceptions or counterexamples) than the other generalizations, it is also considered to be a problem for comparative suppletion because the generalization says that the structure of change of state verb phrases license the realization of suppletive morphology of comparatives.

(7) The Comparative-Change of State Generalization (CΔG)

If the comparative degree of an adjective is suppletive, then the corresponding change-of-state verb is also suppletive (i.e., with respect to the positive adjective). (p. 6, (9))

These generalizations are the main empirical contributions of this book.
Since rich data from many languages, including typologically unrelated languages, support them, not only DM researchers, but also every morphologist and morphological study that deals with these languages must take account of them.

3. Architecture and Analyses

In this section, I briefly describe the essence of the theoretical analyses of the generalizations—CSG, SSG, and RSG—which have a significant role in the book.\(^3\)

The advantage of Bobaljik’s work is that a single set of architectures, one hypothesis along with DM, which are introduced below, will cover a number of generalizations (overviewed in section 2).\(^4\)

3.1. The Containment Hypothesis

First of all, it is necessary to introduce the hypothesis below, which is an important basic assumption of the analyses.

(8) *The Containment Hypothesis*

The representation of the superlative properly contains that of the comparative.

(9) a. [[[ADJECTIVE] COMPARATIVE] SUPERLATIVE]

b. *[[[ADJECTIVE] SUPERLATIVE]] (p. 4, (6) and (7))

Though this hypothesis may look trivial, since this book treats only the “relative superlative,”\(^5\) which has a meaning something like “more than others,” such a meaning need not be represented overtly in syntax and semantics, as seen in (9a).

This hypothesis enables simple and formal accounts for comparative and superlative morphology, especially locality-based analyses for problems of

---

\(^3\) Because of space constraints, I do not discuss Lesslessness and The Comparative-Change of State Generalization (CΔG) in this review. See section 7.2 (pp. 213–220) for Lesslessness and Chapter 6 (pp. 170–207) for CΔG. The study of CΔG is interesting from the viewpoint of languages like Japanese, which do not have comparative or superlative morphology. See also section 3.4.2 (pp. 87–93) for null comparative morphology.

\(^4\) As Bobaljik points out, because there have been no comprehensive studies on these generalizations since Ulan (1972), it is difficult to compare other theories or approaches to Bobaljik’s approach on this topic. See section 4.1 and footnote 11 in this review for a comparison of DM and lexicalist approaches.

\(^5\) Nevertheless, Bobaljik does not propose a test for distinguishing relative and absolute superlative. Rough definitions and some concrete examples are on pp. 2–3.
relationships between suppletion and synthetic/analytic distinction that are
generalized as RSG and SSG discussed in section 3.4. In addition to the
theoretical success of the proposed analysis, direct empirical evidences in
(10) support its adequacy. The data in (10) show that there are many lan-
guages where superlative morphology is derived from and contains compara-
tive morphology—the simple realization of the hypothesis.

(10) Superlative derived from comparative (p. 50, a part of (60))

<table>
<thead>
<tr>
<th>Language</th>
<th>Category</th>
<th>Realization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persian</td>
<td>X-tær</td>
<td>X-tær-in</td>
</tr>
<tr>
<td>Lithuanian</td>
<td>X-iau</td>
<td>X-iau-ia</td>
</tr>
<tr>
<td>Cimbrian German</td>
<td>X-ar</td>
<td>X-ar-ste</td>
</tr>
<tr>
<td>Batsbi</td>
<td>X-vx</td>
<td>X-vx-č</td>
</tr>
<tr>
<td>Latvian</td>
<td>X-âk</td>
<td>vis-X-âk</td>
</tr>
<tr>
<td>Czech</td>
<td>X-ši</td>
<td>nej-X-ši</td>
</tr>
</tbody>
</table>

3.2. General Assumptions in Distributed Morphology

Bobaljik introduces essential and necessary parts of DM for his analyses
and often does not get into the technical details. Three features of the
model that he concentrates on are Late Insertion (realization), Underspecifi-
cation and Locality (p. 5, (8)). Late Insertion and Underspecification have
been the core ideas of DM since Halle and Marantz (1993), while Locality
has developed only over the last ten years. I will turn to Locality, a dis-
tinctive property of DM in which syntax and morphology are closely linked,
in section 4. Assuming Late Insertion allows DM to function as a realiza-
tional model of morphology (Stump (2001)) in an IA (Item and Arrange-
ment) fashion.

3.3. Explanation for the CSG

Let us now take a brief overview of Bobaljik’s analysis for the CSG as-
suming Late Insertion, Underspecification, and the Containment Hypothesis.
Bobaljik proposes the following morphological rules for insertion of a for-
mal feature and a Root.

---

6 There has never been a comprehensive textbook on DM, even though the theory has
over twenty years of history since Halle and Marantz (1993). See Harley and Noyer
(11) a. CMPR → -er
    b. \(\sqrt{\text{GOOD}} \rightarrow \text{be(tt)- /[___] CMPR}\]
    c. \(\sqrt{\text{GOOD}} \rightarrow \text{good}\) (p. 8, (10), irrelevant rules omitted)

These rules are ordered according to the following condition, which is a detailed definition of Underspecification.

(12) **Elsewhere Condition**

If two (incompatible) rules \(R_1, R_2\) may apply to a given structure, and the context for application of \(R_2\) is contained in that of \(R_1\), then \(R_1\) applies and \(R_2\) does not.

(p. 9, (12))

Taking (11) as an example, the more specific rule (11b) is preferentially applied to the Root \(\sqrt{\text{GOOD}}\), while (11c) determines an “elsewhere form” that is realized when other potential exponents are not available.

Let us look at the structural representations of comparative and superlative environments of \(\sqrt{\text{GOOD}}\). The representation of the superlative in (13b) contains a comparative structure, according to the Containment Hypothesis.

(13) a. Comparative: \([\sqrt{\text{GOOD}}]_{A} \text{CMPR} = \text{bett-er}\]
    b. Superlative: \([\sqrt{\text{GOOD}}]_{A} \text{CMPR} \text{SPRL} = \text{be-st}\]

Since both representations fulfill (11b) and (11c), in this case (11b) is applied, due to the Elsewhere Condition (12). Therefore, the suppletive form \(\text{be(tt)}\)- is inserted in both the comparative and superlative environments. This accounts for the CSG, that is, the fact that a rule for a suppletive form in the comparative degree always has to be also applied to a superlative structure.

This explanation does not exclude the ABC pattern in (3c). Ordered rules for the Latin \(\sqrt{\text{GOOD}}\) are as follows.

(14) a. \(\sqrt{\text{GOOD}} \rightarrow \text{opt- /[___] CMPR} \text{SPRL}\]
    b. \(\sqrt{\text{GOOD}} \rightarrow \text{mel- /[___] CMPR}\]
    c. \(\sqrt{\text{GOOD}} \rightarrow \text{bon-}\) (p. 34, (41))

Here, (14a) is applied first because it is the most specific one; the next candidate is (14b), and the last one, (14c), determines the elsewhere form. The ABC pattern is not problematic under the DM analysis incorporating the Containment Hypothesis, as featured in this book.

3.4. **Explanation for the SSG and the RSG**

Locality and syntactic hierarchy play a critical role in the analyses for the SSG and RSG. Recent studies in DM have shown convincingly that some part of conditioned allomorphy is conditioned by syntactic locality as discussed in section 4.1. As schematized in (15a, b), when \(\beta\) is local enough to \(\alpha\), \(\beta\) can function as a context for allomorphy of \(\alpha\); by contrast, \(\beta\) cannot...
affect α’s allomorphy if there is a syntactic boundary between α and β.7

(15) a. α \ldots X^0 \ldots \beta

b. *α \ldots X \ldots \beta

(p. 68, (90))

The structures and ordered rules given below make it possible to derive the RSG. The structure of complex heads (16b) is derived by Merger, which is a language-specific lowering operation applied at a post-syntactic component, that is, Morphology. I have modified the rules presented below for English; they are originally for Greek.

(16) a. CMPRP b. c

123

146

160

173

CMPR

ADJP

ADJ

CMPR

ADJ

(17) a. GOOD → be(tt)- / \[ CMPR \]

b. GOOD → good

c. CMPR → -er / ]ADJ[

d. CMPR → more

(p. 69, (93), modified for English)

When Merger is applied, a synthetic form is realized, since structure (16b) satisfies the contextual requirements for applying rules (17a, c).

This is a basic mechanism that enables Root suppletion only when comparative morphology is synthetic. Namely, a necessary environment for Root suppletion via Merger, which constructs a kind of local domain, X^0 (complex head), also brings synthetic morphology. This analysis shares a basic orientation with Embick and Marantz (2008). Furthermore, assuming optionality in the Merger, the analysis can also deal with doublet pairs like politer/more polite.8

Let us now go on to a slightly more complex case, that of SSG. A related structure can be schematized as below under The Containment Hypothesis. Here, (18b) is a complex heads structure that is yielded via successive Merger.

7 Bobaljik adopts maximal projections and phases as marking boundaries. Embick (2010) and other DM works often use only phases.

8 Synthetic/analytic optionality varies typologically. For instance, Greek allows free alternation for any vocabulary item while only a small group of adjectives shows alternation in English (see pp. 69–73).
Synthetic superlative morphology is available only when a language also has Merger applying to \textit{cmpr} and \textit{adj}, since this kind of operation cannot skip intervening heads (Marantz (1988), see also Embick and Noyer (2001)). Therefore, languages that have morphological superlatives, like Persian, Lithuanian, and English, must have Merger of \textit{cmpr} and \textit{adj}, which makes morphological comparatives possible. This is the SSG. On the other hand, languages that have only analytic comparatives, like Romanian, Albanian, and Turkish, allow only analytic superlatives due to the lack of Merger of \textit{cmpr} and \textit{adj}.

These analyses give a good account for the SSG and the RSG from the viewpoint of the relation between locality and allomorphy.

4. Theoretical Implications

4.1. Cycle-Sensitive Allomorphy

The approach to suppletion in this book, especially concerning the SSG and the RSG as described in section 3.4, belongs to a rapidly developing area of DM study that is demonstrating strong correlations between syntactic locality and allomorphy (Bobaljik (2000), Embick (2010), Embick and Marantz (2008), Bobaljik and Wurmbrand (2013)), which can be called Cycle-Sensitive Allomorphy (CSA).

As Bobaljik points out, the analysis employing head movement instead of Merger is possible because this syntactic operation has the same locality condition, the head movement constraint (Travis (1984), see also Matushansky (2006)). However, the head movement analysis faces a problem of optionality that is more pronounced in syntax than in morphology.
Cycle-Sensitive Allomorphy

Contextual allomorphy that is sensitive to syntactic locality (e.g., phase)

Bobaljik’s book under review here identifies a new kind of CSA, that is, involving patterns relevant to the SSG and the RSG. The common feature of most CSA phenomena in previous research can be generalized as follows: a morphosyntactic feature that is close to a Root, that is, in the same cycle, can have various exponents depending on its Root, because the information for the Root is visible from the feature, while a morphosyntactic feature that is far away from a Root, that is, not at the same cycle, does not show contextual allomorphy, since the exponent of the feature is determined independently of its Root. In particular, the lack of *long-more long-longest (SSG) is a new pattern accounted for by CSA since this is accounted for by locality-constrained relationships of Merger rule applications as overviewed in section 3.4.

Let me show slightly older, well-attested examples from English nominalizations.

(20) Allomorphs in English nominalizations

a. Outer -ing (gerund): try-ing, remov-ing, stopp-ing, break-ing, ...

\[ np \bigl[ vp \sqrt{\text{TRY} \ [v, \varnothing]} \ [n, -ing] \bigr] \]

b. Inner -al, -age: tri-al, remov-al, stopp-age, break-age, ...

\[ np \sqrt{\text{TRY} \ [n, -al]} \]  (Embick (2010): 94–96)\(^{10}\)

The gerund is an outer nominalization, where a category-defining n(ominal) head is always realized as -ing since the information for the Root is invisible from the head due to the intervening phase head, v; in contrast, in inner nominalizations, an n head shows allomorphy depending on its Root, because both are in the same cycle and visible to each other.

The patterns of comparative-superlative correspondence that Bobaljik discovered are important for the study of CSA since it is clear that they indicate the necessity of the locality-based approach to allomorphy. Certainly, the DM approach to the outer-inner type of CSA gives us an account of the distributions of morphemes, but it is also possible to analyze them in terms of the traditional lexical/syntactic distinction: outer nominalization is a syntactic word formation process, while inner nominalization is a lexical

---

\(^{10}\) I have skipped the third type of nominalization and simplified Embick’s argument for convenience.
one. Bobaljik’s discovery and analysis, especially concerning SSG, has the potential to open up new horizons for inquiries on the relations between locality and morphology since the analysis shows that some synthetic/analytic distinctions are determined by the minimality/locality of operations (Merger or head movement) and their hierarchical structures. It is difficult to analyze this through a lexical/syntactic (namely, lexicon/syntax) distinction because both comparatives and superlatives generally subsumed in inflectional morphology, which is considered a syntactic phenomenon in many lexicalist approaches.11

Bobaljik’s study also enumerates several predictions and problems for syntactic research on locality, especially concerning interfaces. For example, discussions in Chapter 5 touch upon morphological and phonological issues, and those in Chapter 6 touch upon semantic issues (see also Bobaljik and Wurmbrand (2013)).

4.2. Contents of Roots and Root Suppletion

The analyses and data presented in Bobaljik’s book shed light on the characteristics of, and problems related to Root, the acategorial syntactic object which has recently been a hot, controversial topic in DM, and other syntactic approaches to word formation. One important problem is what kind(s) of information Roots (should) have: semantic content, phonological content, both, or nothing (Harley and Noyer (1999), Arad (2003), Embick and Noyer (2007), Acquaviva (2009), Embick (2012), Harley (2014)).

As Harley (2014) points out, Root suppletion is problematic for theories where Roots have their phonological content given presyntactically (Embick and Noyer (2007)) because it conflicts with the late insertion account of suppletion.12 In order to apply late insertion to Roots, their phonological form must be undetermined before Morphology. Readjustment rules and other (morpho-)phonological rescues are unpromising in this regard, since suppletive forms are phonologically unrelated to their basic forms by definition. The typologically rich comparative and superlative data in the book under review clearly show that Roots in various languages exhibit suppletion, indicating that Harley’s question is not limited to a few specific lan-

---

11 An important point here is that the lexical/syntactic “distinction” has almost no chance of survival. Meanwhile, strong(er) lexicalist approaches may provide some analyses without syntactic locality.

12 Provided that a Root has a set of possible phonological exponents such as \{good, be(ttr)\}, this problem might be avoided, at least technically (cf. Borer (2014)).
guages but rather that Root suppletion is a “universal” problem.\textsuperscript{13}

The problem of Root addressed here is not theory-internal, that is, not relevant only for DM; instead, it is a general challenge for the idea of a so-called “word” and related notions: morpheme, stem, root, lexeme, lexical item, terminal node, head, and so on. We can ask whether $\sqrt{\text{GOOD}}$ in English and $\sqrt{\text{GOOD}}$ in Latin are different, and if so, how? Moreover, this issue will relate to other, general problems. For instance, in case only basic vocabulary items trigger Root suppletion, we should answer questions such as “Which lexical items constitute the basic vocabulary?” This is the problem of grammaticalization or functional/lexical distinctions of morphemes.

Such problems are also important for one of the main topics of this book: What is the structure of words\textsuperscript{14}—that is, what is the core of words, and how are words derived from the core?

5. Concluding Remarks

Bobaljik’s book is a good introduction to Distributed Morphology, a formal approach to theoretical morphology, and a typological study in generative morphosyntax. Moreover, readers can find many research questions in the book. Theoretical linguists will detect points that need more sophisticated and strict formalization. Although a look at a large amount of typological data from many languages is very fascinating, the data should also be attested by typologists and specialists in each language. As discussed in section 4, not only empirical but also theoretical aspects of the study can have a broader impact on linguistic studies beyond the borders of DM, generative frameworks, and morphology alone.

\textsuperscript{13} The idea that a marked member of a pair with the same scale is derived by adding some operator to an unmarked one discussed in Chapter 7 (pp. 214–220) may complicate the problem of what the identity of Root is.

\textsuperscript{14} Recently, other syntactic studies have also focused on Root. Chomsky (2013) suggests that Root has an important role in the labeling algorithm that is one of the basic architectures of syntax. This means that Root participates in not only word formation but also phrase formation.
REFERENCES


Travis, Lisa (1984) *Parameters and Effects of Word Order Variation*, Doctoral dis-
sertation, MIT.

[received July 21, 2014, revised and accepted December 16, 2014]

Faculty of Humanities and Social Sciences
University of Tsukuba
1–1–1 Tennodai, Tsukuba-shi
Ibaraki 305–8577
e-mail: tagawa.takumi.kp@u.tsukuba.ac.jp