

Many Plurals: Inflection, Informational Additivity, and Morphological Processes

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1. Introduction

Pointing to the many morphological phenomena that do not involve the addition of a discrete phonological piece – such as morphological subtraction or ablaut – non-morphemic morphological theories argue against a morpheme-based theory of morphology and replace it with a theory based on process (e.g., Aronoff 1994, Anderson 1992, Hoeksema and Janda 1988). The driving idea of processual theories can be schematized as in (1), which says that a morphological object of type A is mapped into a morphological object of type B.

(1) [Morphological object A] → [Morphological object B]

That is, a processual theory focuses on, and attempts to account for, the kinds of relationships that can exist between and among stems and words.

This paper is concerned with the implications for a processual view of morphology of the idea that inflection is informationally additive¹: When the relationship in (1) has to do with inflection, it is also necessarily the case that B is informationally richer than A.

Two assumptions inform the exploration. First, drawing on information-based syntactic theories (like HPSG or LFG) and consistent with the morphological work of Aronoff 1994, I take linguistic objects, whether they involve stems, words, phrases, or sentences, to be signs. They involve a phonological part, a semantic part and – crucially for our purposes – a syntactic part.

1. Through a reanalysis of Anderson's A-morphous analysis of Potawatomi, Steele 1995 introduces the idea that inflection is informationally additive.

- (2) [phonology]
 [syntax]
 [semantics]

Second, a sign is an articulated attribute/value structure. That is, each of the three parts of the sign in (2) involves a set of features and associated values. Because I will have little to say about the internal structure of the phonological and semantic parts, (3) accordingly expands the syntax of a sign only. Each of the superscripted *F*s stands for an attribute; the lower case letters represent values.

- (3) [phonology]

$$\left[\begin{array}{l} F^1: a \\ F^2: b \\ F^3: c \end{array} \right]$$
 [semantics]

Given these two assumptions, informational additivity and inflection are easily defined. If a word in Language A has the syntactic information represented in (3), a stem offers an informationally reduced set. One such possibility is exemplified in (4).

- (4)
$$\left[\begin{array}{l} F^1: a \\ F^2: \\ F^3: \end{array} \right]$$

Inflection is that set of operations by which an informationally reduced set of values as in (4) becomes a fully specified set of values as in (3). For convenience, (5) represents this set as a single operation.

- (5)
$$\left[\begin{array}{l} F^1: a \\ F^2: \\ F^3: \end{array} \right] \rightarrow \left[\begin{array}{l} F^1: a \\ F^2: b \\ F^3: c \end{array} \right]$$

The manipulation of information has not been the hallmark of processual theories of morphology. Anderson 1992, for example, treats inflection as the phonological interpretation of syntactically constructed informational structures. The reason for this gap is intuitively obvious. Because they allow for the existence of operations pairing a discrete phonological segment and a single piece of information, operations that manipulate information might appear to reopen the door to the morpheme. Suppose, for example, that (5) subsumes two operations, one adding the value [b] and another adding the value [c]. Each of these could also involve the addition of a phonological segment.

- (6) a. PHON: X
 SYNTAX: $\begin{bmatrix} F^1: a \\ F^2: \\ F^3: \end{bmatrix}$ → PHON: Xp
 SYNTAX: $\begin{bmatrix} F^1: a \\ F^2: b \\ F^3: \end{bmatrix}$
- b. PHON: Xp
 SYNTAX: $\begin{bmatrix} F^1: a \\ F^2: b \\ F^3: \end{bmatrix}$ → PHON: Xpq
 SYNTAX: $\begin{bmatrix} F^1: a \\ F^2: b \\ F^3: c \end{bmatrix}$

Yet the inadequacy of the morpheme in accounting for the many types of morphological alternations was a primary impetus to the rise of processual theories. This paper is concerned, therefore, with demonstrating that, far from sneaking in through the back door the traditional pairing of sound and meaning, the manipulation of information does not undercut the basic insight of processual morphology. More critically, a reasonably detailed analysis of a morphological phenomenon in a single language, based on informational additivity, provides dramatic support of the fundamental impetus behind processual morphology.

The analysis of the Luiseño morph *um*, traditionally identified as the “plural” morpheme, is the heart of the argument.² (7) illustrates the morph in question.

- (7) a. hunwut ‘bear’ b. hunwutum ‘bears’

The contrast in (7) might lead to the expectation of an operation like that in (8), where the addition of phonological piece /um/ is associated with the addition of the information [pl].

- (8) **PL:**
 PHON: /X/ → PHON: /Xum/
 SYNTAX: [N:] SYNTAX: [N: pl]

2. The Luiseño data in this paper are based on my work with the late Mrs. Villiana Hyde, work that was supported at various times by the University of California, the University of Arizona, the National Science Foundation, the American Council of Learned Societies, the Wenner-Gren Foundation, and the American Association of University Women.

The examples appear in the orthography introduced in Hyde 1971. The symbols are standard, with a few exceptions chosen for typing ease. The sequences *sh*, *ch*, and *ng* represent /š/, /č/, and /ŋ/ respectively; a sequence of two identical vowels, e.g., *ee*, indicates a long vowel; \$ represents a retroflex sibilant; and glottal stop appears as ‘.

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