

## 1

---

# Dual Lexical Categories and Inflectional Morphology

JAMES H. YOON

## 1.1 Introduction - Morphosyntactic Mismatches and Their Typology

A central question that drives much research on the interaction of morphology and syntax concerns the proper analysis of what we may call ‘morphosyntactic mismatches’.<sup>1</sup> A morphosyntactic mismatch arises when morphosyntactic information expressed by a morphological sub-constituent of a word such as an affix becomes “syntactically relevant” (Anderson 1982) in the sense that

---

<sup>1</sup>I have had the good fortune to come to know, interact (and disagree) with Steve during the time he was developing his views on mixed categories. My understanding of the intricate issues in morphosyntax and mixed categories has been significantly enhanced through the years of our relationship, which, despite our differing theoretical positions, had much in common, including a daughter of Korean heritage named Rachel. On several occasions, I tried (though without much success) to convince Steve of the viability of the ideas that I am putting forth here. I regret that Steve is no longer around to pick out holes in my logic and argumentation.

This work was presented in different incarnations at Myongji University, Seoul, Korea (1997), the Generative Grammar Circle of Korea (1998), the Workshop on Theoretical East Asian Linguistics at the University of California, Irvine (1999), the Workshop on Theoretical Approaches to Morphology in honor of Steve Lapointe held at the University of California, Davis (1999), and as class lectures at the LSA Summer Institute held at the University of Illinois, Urbana-Champaign (1999). My thanks go out to the participants on these occasions for constructive feedback and criticism, in particular, Abbas Benmamoun, Hee-Rahk Chae, Naoki Fukui, Adele Goldberg, C-T James Huang, Jungmin Jo, Jongbok Kim, Wooseung Lee, Roger Levy, Chongwon Park, and Jerry Sadock. I am especially grateful to Orhan Orgun and Peter Sells for organizing the memorial workshop for Steve and to Peter (again) for helpful comments on the paper. While Peter may not recognize it, the central idea reported here – that inflection is distribution-determining – finds its origin in the proposals of Sells (1995) and Cho & Sells (1995).

principles of syntax make crucial reference to it.

Simplifying somewhat, we can say that the fundamental research questions in theoretical investigations of morphosyntactic mismatches are the following:

Q1: How should morphosyntactic mismatches be analyzed?

Q2: How many types of morphosyntactic mismatches are there?

The answers to these questions divide the field of generative morphosyntax into two broad camps, lexicalists and non-lexicalists.

For proponents of Lexicalism, the answer to the first question is that morphosyntactic mismatches don't exist, strictly speaking. Ignoring clitics, which are assumed to have a phonological but not a morphosyntactic dependency on their hosts, parts of words such as affixes may contribute features to the word they are a part of, but not beyond. Syntax takes over at the word level. General principles of syntactic feature percolation pass information available at the word-level to phrasal levels, giving the appearance of a morphology-syntax mismatch.<sup>2</sup>

As for the descriptive typology of such mismatches, a reading of the lexicalist literature reveals that a distinction is made between mismatches that arise from a morpheme attached to the lexeme that functions as the Head of a phrase versus those that arise from a morpheme attached to a lexeme on the margin of a phrase (its Edge). A second, orthogonal distinction is made between inflectional and morphosyntactic mismatches of the kind that arise in mixed categories like gerunds. The syntactic relevance of features realized on the Head of a phrase is handled by a version of the Head Feature Principle (GKPS 1985; Pollard & Sag 1994, etc.), while morphosyntactic mismatches propagating from the margins of a phrase are dealt with by the Edge Feature Principle (Zwicky 1987, Halpern 1994). However, the Head/Edge Feature Principle(s) deal(s) with the phrasal scope of inflectional morphosyntactic features and not with mismatches created by morphemes of the type found in mixed category constructions such as the English gerund. The theory of Dual Lexical Categories (Lapointe 1993, 1998) represents one attempt within lexicalism to deal with this type of mismatch.<sup>3</sup>

---

<sup>2</sup>The description here proceeds from the perspective of Item-and-Arrangement approaches, rather than from realizational approaches (Anderson 1992, Stump 2001). That is why I speak of features passing from affixes to the word. As I hope to make clear, the issues that this paper raises are not affected by the choice between morpheme-based and realizational approach. Also, since I am painting the theoretical landscape in broad strokes, I cannot deal with fine-grained variations on the lexicalist (or, for that matter, the anti-lexicalist) theme.

<sup>3</sup>Again, I cannot do justice to the full variety of lexicalist proposals. For example, Malouf (2000) takes a completely different lexicalist approach to mixed categories, and Halpern (1994) unifies the Head and Edge Feature Principles. Other notable attempts to deal with mixed categories under broadly lexicalist assumptions include Lefebvre and Muysken (1988), Haspelmath (1995) and Spencer (1998).

## DUAL LEXICAL CATEGORIES AND INFLECTIONAL MORPHOLOGY / 3

For researchers who reject the strictures of the Lexicalist Hypothesis, morphosyntactic mismatches arise when a formative/atom in syntactic is realized morphologically as a sub-word level constituent. This state of affairs is permitted because the formatives/atoms of syntax need not be full words. As for the typology of the mismatches, the distinction between Head versus Edge-realized mismatches seems to be made in some form or other. However, that between inflectional and mixed category type mismatches is not. The tool of choice for the analysis of Head-realized mismatches is Head Movement (Baker 1988, Pollock 1989, etc.), while processes that go under the rubric of PF/Morphological Merger are appealed to in the case of edge-realized mismatches (Marantz 1984, Bobaljik 1994, Benmamoun 2000, Embick & Noyer 2001, etc.).<sup>4</sup>

The survey of the two major schools of thought in morphosyntax just given reveals the following points of convergence and divergence regarding the typology of morphosyntactic mismatches. The point of convergence concerns the distinction between Head versus Edge-realized mismatches. The distinctness of the two types of mismatches is recognized in both lexicalist and non-lexicalist approaches, though predictably the analytic tools differ. Where the two camps diverge is with regard to the issue of whether inflectional and mixed category type mismatches should be distinguished. Lexicalist approaches distinguish the two in one form or other, while non-lexicalist approaches generally do not. For example, Lapointe, the architect of the lexicalist, feature-passing approach to inflectional morphosyntactic mismatches (Lapointe 1980), did not extend the feature-passing approach to mixed categories (Lapointe 1993, 1999). In non-lexicalist approaches, on the other hand, Head Movement is used to model inflectional (Pollock 1989) as well as mixed category mismatches (Abney 1987, Borsley & Kornfilt 2000, etc.).<sup>5</sup>

The question that motivates our inquiry in this paper is the disagreement between lexicalist and syntactic approaches regarding the typology of morphosyntactic mismatches. That is, the paper is an attempt to answer the question of whether inflectional and mixed category type mismatches are fundamentally different, as current lexicalist approaches assume, or are at some level uniform, as syntactic approaches contend. The central argument I make

---

<sup>4</sup>The distinction between Head and edge-realized features appears to have escaped the attention of many in the non-lexicalist camp because of the supposition that Head Movement (or Merger) suffices to deal with all types of morphosyntactic mismatches. However, a careful reading of the literature (for example, Embick and Noyer 2001) suggests that the distinction needs to be made.

<sup>5</sup>As is well-known, Head Movement is employed to deal with morphology proper (derivational and argument structure changing morphology) in certain syntactic approaches (Baker 1988, Lieber 1992). Since lexicalists do not consider these domains to be syntactically relevant, we will not discuss these areas in this paper, as our goal is to compare the two approaches in areas where there is a consensus that a (potential) mismatch exists.

is that the two types of mismatches are alike at the right level of abstraction and that consequently their unity should be recognized in any theory of morphosyntactic interaction.

The argument is unfolded in the following order. In section 2, we are shown why a unified analysis of inflectional and mixed category-type mismatches is not possible using feature passing mechanisms currently in use in lexicalist approaches. The question that is addressed next is whether the state-of-the-art in lexicalist approaches to morphosyntactic mismatches reflects the limitations of feature-passing mechanisms currently in use or is indicative of a fundamental difference between inflectional and mixed category-type mismatches that all theories should recognize. In sections 3 and 4, the argument is made that the two types of mismatches are fundamentally similar, despite appearance to the contrary. In section 5, it is suggested that among the lexicalist analyses on the market, Lapointe's DLC theory is unique in that it can be easily modified to serve as a unified analysis of the two types of mismatches under lexicalist assumptions. It is also shown that unified accounts of the mismatches are already available under syntactic approaches. Section 6 concludes the paper.

## 1.2 Lexicalist Analyses of Morphosyntactic Mismatches

Not many syntactic frameworks, lexicalist or otherwise, offer an explicit account of how morphology and syntax interact. For their part, comprehensive morphological theories don't come with an explicit view of how morphology relates to syntax.<sup>6</sup> Thus, the sketch presented below confronts the risk of glossing over important distinctions on one hand and of being too eclectic on the other. However, I believe it is representative of the approach to morphosyntactic interaction adopted in many lexicalist theories of morphology and syntax currently on the market, which, incidentally, all derive from the pioneering work of Lapointe (1980).

### 1.2.1 Inflectional Morphosyntactic Mismatches under Lexicalist Assumptions

Two key components of lexicalist accounts of inflectional morphosyntactic mismatches are (i) mechanisms of feature passing and, (ii) the accompanying typology of morphosyntactic features. The workings of these components are illustrated using the distribution of the inflectional morphosyntactic feature *PRP*.

- (1) a. The puppy kept [<sub>VP[PRP]</sub> putt-ing<sub>PRP</sub> the book behind the couch]

---

<sup>6</sup>A notable exception is the framework of Distributed Morphology (Halle & Marantz 1993, etc.).

## DUAL LEXICAL CATEGORIES AND INFLECTIONAL MORPHOLOGY / 5

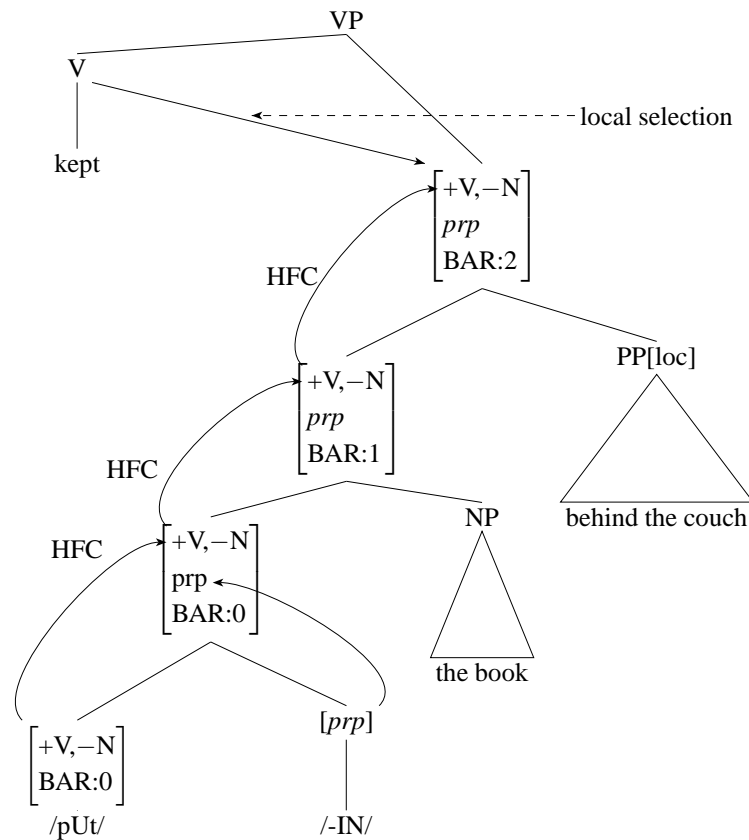
In (1) above, the phrase in brackets occurs as a complement to the lexeme KEEP which subcategorizes a VP whose Head is inflected for PRP, that is, VP[*prp*]. Standard assumptions take subcategorization to be satisfied under sisterhood. This means that the sister node of KEEP should bear the specification for PRP. However, the formative that introduces the PRP specification is a suffix on the root *put*. What is required is a way of getting PRP from within the word *putting* up to the VP node. This is a job that falls to feature percolation principles and the accompanying feature typology.

In morphology, it is hypothesized that inflectional affixes contribute information to the word ( $X^0$ ) node as long as the information does not contradict those coming from the root.<sup>7</sup> Since there is no such conflict in this case, the PRP specification is passed from the inflectional suffix to the  $V^0$  node dominating *putting* in (2) below. This is how PRP enters the syntax from morphology. In syntax, features contributed by inflectional affixes, together with the POS (Part of Speech) features coming from the root, are categorized as Head features. The Head Feature Principle (GKPS 1985; Pollard & Sag 1994) ensures that these features are passed along the Head path to the maximal phrase. The percolated features on the maximal projection are now in a configuration where they can be selected locally by the subcategorizing lexeme KEEP.

(2) KEEP: [ \_\_\_\_ VP[*prp*]]

---

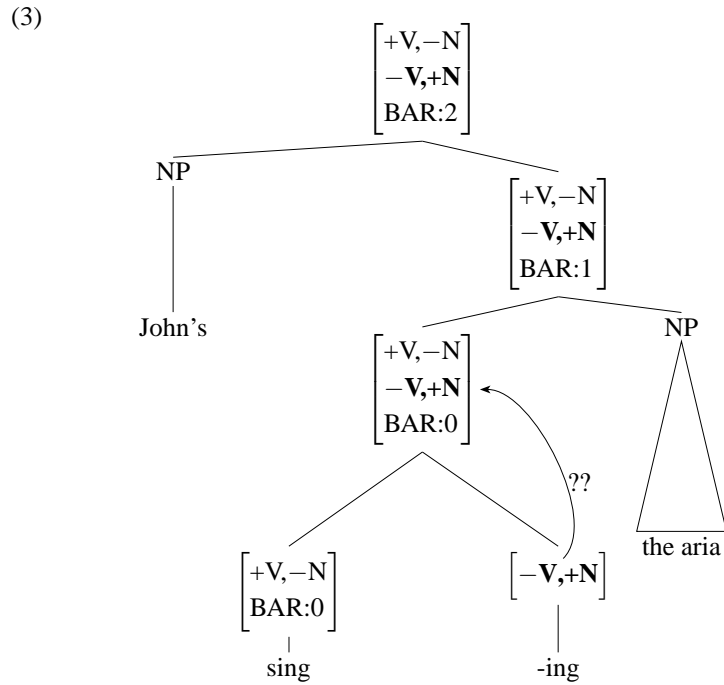
<sup>7</sup>See Selkirk (1982), DiSciullo & Williams (1987), Lieber (1980, 1992) for specific implementations of this idea within lexicalist approaches to morphology.



In spite of its success in modeling the syntactic relevance of inflectional morphology without the need to posit affixes as syntactic atoms (Chomsky 1957), the type of analysis sketched above cannot be extended to morphosyntactic mismatches found in mixed category structures.

Mixed category structures such as the English gerund seem to contain a single Head, but two distinct sets of categorial properties characterize the construction. In particular, a gerund phrase is internally verbal, but externally nominal, as is well-known. Mixed categories cannot be analyzed with the mechanisms used for inflectional morphosyntactic mismatches illustrated in (2) based on the HFC and the assumption that an affix can pass features to a dominating word only if the features do not conflict with those coming from the root. An attempt to analyze mixed categories using the assumptions in (2) and the problems that arise in doing so is illustrated below.

DUAL LEXICAL CATEGORIES AND INFLECTIONAL MORPHOLOGY / 7



The first problem arises in morphology, given the assumptions stated above. Assuming that the gerund-forming suffix *-ing* is specified as [+N, -V], it will not be able to pass its feature to the word ( $X^0$ ) node, since the POS specification of the root ([-N, +V]) and that contributed by the affix ([+N, -V]) are in conflict. Supposing for the sake of argument that somehow the feature specification contributed by the suffix could get up to the word node. What we want now is for the [+N, -V] specification to percolate along the Head path all the way to the maximal projection of the word. Here we run into the same problem as before, since the POS specification introduced by *-ing* and that coming from the root lexeme *sing* contradict each other.

Let us suppose, again for the sake of argument, that this problem could somehow be resolved so that both sets of conflicting feature specifications can percolate along the Head path. Even if we allow the two conflicting sets of feature specifications to co-exist on a given node, we still have to account for the fact that one set of POS specification (that contributed by the suffix - [+N, -V]) is completely inert internal to the projection of the root, having its effect only on the external syntax, or distribution, of the entire phrase. The other set of POS specification ([-N, +V], contributed by the root) in turn is unable to determine the distribution of the maximal phrase but instead is

exclusively involved in matters pertaining to the internal syntax of the phrase.

Looked at this way, the distribution of syntactic features in inflection and that in mixed category structures seem to be completely different, requiring different theoretical treatments, such as the theory of Dual Lexical Categories proposed in Lapointe (1993, 1999) which is designed specifically for mixed categories. In the next section, we show how the DLC theory provides an account of the properties of mixed categories such as the gerund.

### 1.2.2 Dual Lexical Category Convention (Lapointe 1993, 1999)

In Lapointe (1993, 1999), the theory of Dual Lexical Categories (DLC) is developed to deal with the mismatch between internal and external properties of constructions containing mixed categories such as gerunds. The definition of DLC is given below.<sup>8</sup>

- (4) Dual Lexical Category
- A *dual lexical category* (DLC) is a category of the type  $\langle X|Y \rangle^0$ , where;
- a. X and Y are major lexical categories.
  - b. X determines the external syntactic properties of the phrase of which the item is a lexical head.
  - c. Y determines the internal syntactic properties of that phrase.

In DLC theory, normal, unmixed categories arise when the two components of DLC are identical. Thus, mixed categories are *asymmetrical* DLCs, while normal categories are *symmetrical* DLCs.

- (5) Symmetrical vs. asymmetrical DLCs (Lapointe 1993):
- Asymmetrical DLC:  $X \neq Y$
- Symmetrical DLC:  $X = Y$

Lapointe (1999) presents further postulates of the DLC approach to mixed category phrases.

- (6) General consequences of the DLC approach to mixed category phrases:
- a. The internal structure of a mixed category phrase is that of YP, and so the phrase structure of the category must go up at least to that BAR-level in order to include all the internal properties of YPs.

---

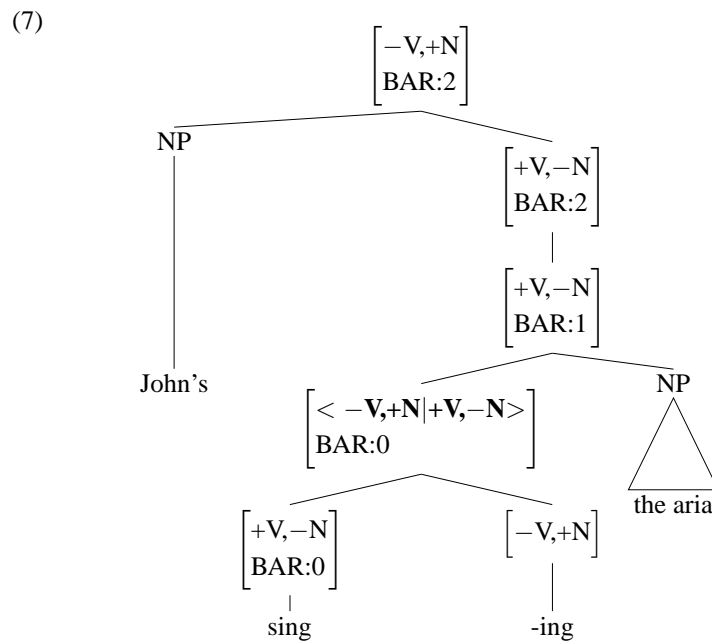
<sup>8</sup>DLC is similar in conception to the analysis of Hale & Platero (1985) which posits two set of conflicting POS specifications for mixed categories like the gerund. Additional assumptions ensure that the two sets of features don't end up in conflict. Hale & Platero (1985) suggest that one set of POS specifications is 'downward looking', while another is 'upward looking'. A DLC-like analysis is proposed in Haspelmath (1995) as well.



## DUAL LEXICAL CATEGORIES AND INFLECTIONAL MORPHOLOGY / 9

- b. The category switchover point occurs just above YP, which has an X-type category as its mother node.
- c. That X-type category must be XP and not X' or X<sup>0</sup>, since the whole phrase has the external properties of XP, and none of the internal properties of X' or X<sup>0</sup>.
- d. Asymmetrical DLCs arise only as a result of a morphological or lexical process.

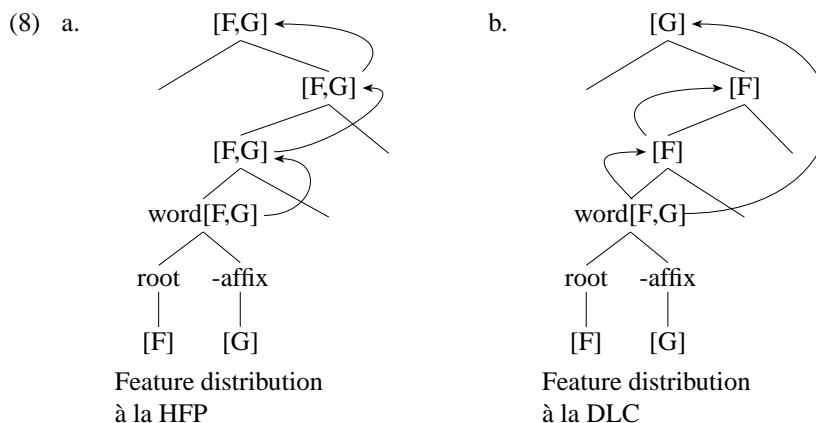
A DLC analysis of *POSS-Ing* gerunds is shown below.



The DLC analysis correctly captures the properties of the gerundive construction. By postulate (6d), the suffixation of *-ing* to the verb *sing* results in the creation of an asymmetrical DLC,  $\langle N|V \rangle$ . Since the first half of a DLC governs external distribution and the second half governs internal syntax, the DLC analysis predicts that a gerund phrase will have the external distribution of noun phrases but the internal syntax of verb phrases. Conflicts of the two sets of POS specifications do not arise, as each set is relevant to different dimensions of the construction by hypothesis.<sup>9</sup>

<sup>9</sup>While the DLC theory predicts no internal nominal properties for gerunds, the *POSS-Ing* gerund has a Gen-marked Subjectoid (Pullum 1991). Lapointe's (1993, 1999) solution to this problem is to have Gen-marking in this type of gerund be determined by the category of the mother node of the gerund, rather than by its sister.

Although they appear to be radically different, the two analyses of morphosyntactic mismatches introduced above are essentially varieties of feature passing approaches to morphosyntactic mismatches. Seen in this light, the major difference between the mode of feature passing that falls under the HFP and that handled by DLC theory is the following. Features that fall under the HFP pass from the word ( $X^0$ ) functioning as the Head of a phrase to the maximal projection from local tree to local tree. Features introduced by the root and those coming from the affix do not differ in how they are distributed in the tree as long as they are categorized as HEAD features. In contrast, under the DLC theory, a subset of the Head features of the Head (those introduced by the affix) passes non-locally from the Head to the maximal projection, while another, disjoint subset (those coming from the root lexeme) passes from the Head to the maximal projection locally, in the manner dictated by HFC. The following structures illustrate the differences.



What I will attempt to do in the next section is to show that the inflectional morphosyntactic mismatches handled via HFP (shown in 8a) are in fact no different from the category mismatches observed in mixed category constructions (shown in 8b), despite appearance to the contrary. That is, features contributed by inflectional affixes are exclusively relevant for external syntax, while those contributed by the root determine the internal syntax. Therefore, the only distribution of syntactically relevant features is something like that shown in (8b). Inflected words exhibit the same sort of radical dissociation between internal and external properties as mixed categories, calling for a

---

A detail that is left undeveloped is why the DLC resulting from the suffixation of *-ing* to *sing* results in  $\langle N|V \rangle$ , rather than  $\langle V|N \rangle$ . To the best of my knowledge, Lapointe did not address the purely morphological aspects of DLC formation.

unified account of the two types of mismatches.

### 1.3 Inflected Words Are Mixed Categories

#### 1.3.1 The Dissociation between External and Internal Syntax (C-L Baker 1995)

Structural linguistics made a distinction between the *external syntax* and the *internal syntax* of a phrase. The external syntax of a phrase is the syntactic context that the phrase as a whole occurs in - i.e., its distribution. The internal syntax of a phrase concerns what elements can co-occur within a phrase of a given type. Prior to the advent of X-Bar Theory in generative grammar (Chomsky 1971, Jackendoff 1977), the relation between these two dimensions was simply stipulated in individual PS-rules. With the advent of X-Bar Theory, it was realized that a unique constituent within a phrase, its Head, pulls together the two dimensions in an interesting way.<sup>10</sup> This is the idea of Endocentricity that is central to all versions of X-Bar theory.

From the perspective of the distinction between external and internal syntax, Endocentricity may be restated as follows, drawing on the various properties of Heads as identified in Zwicky (1985) and Hudson (1987):

- (9) Endocentricity (rephrased):  
The Head of a phrase, as the determinant of its internal syntax (in virtue of its role as ‘ruler in a dependency’), is also the determinant of its external syntax (in virtue of its role as ‘distributional equivalent’).

Now, categories are complexes of features (Chomsky 1965, GKPS 1985, Pollard & Sag 1994, etc.). Therefore, we need to be more specific about what features are involved in Endocentricity as understood above, since, for example, we do not want the phonological features of a Head to determine the syntactic distribution of the phrase. The intended claim that phrases are endocentric may therefore be expressed as follows:

- (10) Strong Endocentricity Thesis:  
Features of Heads that determine the internal syntax of a phrase also determine the external distribution of phrases.

That mixed categories don’t seem to abide by (9)-(10) is well-known, since the determinant of the internal syntax is not what determines the external distribution of phrases headed by mixed categories. However, once we examine the syntax of unmixed, inflected categories, we can see that they are equally problematic for the Strong Endocentricity Thesis. This is because even in phrases headed by simple inflected categories, the determinant of internal

<sup>10</sup>In so far as the phrase type is endocentric. In non-headed phrases, there is no principled correlation between the two dimensions.

syntax and that of external syntax are different morphosyntactic features of the Head. Examination of the following simple paradigms will serve to drive this point home.

- (11) kept . . .
- a. *putting* my slippers behind the couch.
  - b. *asking* for more food.
  - c. \**put* my slippers behind the couch.
- (12) kept . . .
- a. *putting*<sub>PRP</sub> my slippers repeatedly<sub>ADV</sub> behind the couch.
  - b. \**putting*<sub>PRP</sub> behind the couch.
  - c. \**putting*<sub>PRP</sub> my slippers repeated<sub>ADJ</sub> behind the couch.

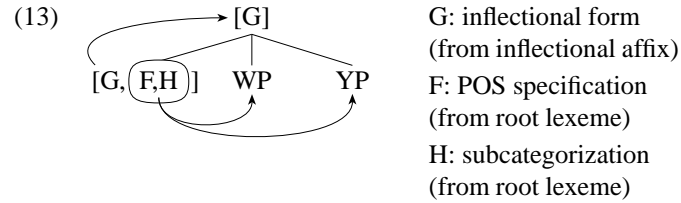
What constrains the external syntax of the phrases in (11 a-c) is the subcategorization of the lexeme KEEP which requires complements that have the specification VP[*prp*]. What we notice here is that the lexeme KEEP does not care about the subcategorization properties of the verb that heads its complement, as long as it occurs in the PRP form. In contrast, the internal syntax of complement phrases is determined by the POS and subcategorization specifications of the lexeme that heads it. For example, since (12b) fails to satisfy the subcategorization of PUT, it is out. And since PUT is a verb lexeme, it requires adverbial rather than adjectival modifiers (12a vs. 12c).

The observation made above suggests that as far as the external syntax of the complement phrase is concerned, the features contributed by the (inflectional) affix behave as the Head, since PRP is the ‘distributional equivalent’ of the phrase. In contrast, with regard to the internal syntax, what seem relevant are the POS and subcategorization specifications of the Head lexeme. The fact that it is inflected in the PRP form is irrelevant - differently inflected forms of the lexeme PUT have the same subcategorization, govern Accusative case on its dependent NP, and require adverbial instead of adjectival modification.

The picture we obtain from examining the paradigms in (11) and (12) is the following. The features supplied by the inflectional affix are exclusively relevant to external syntax, while a disjoint set of features coming from the root lexeme exclusively govern internal syntax. This is illustrated schematically below.<sup>11</sup>

---

<sup>11</sup>I am simplifying here. It is not the case that all inflectional affixes are relevant to distribution, as can be verified in languages where lexemes allow more than one inflectional affix. Thus, the feature set G in (13) stands for the morphosyntactic features introduced by *distribution-determining* (also called ‘closing’) inflectional affixes. We will come to examples of distribution-determining inflection in section 4.1.



It should not be difficult to see that the distribution of features looked at this way is identical to that of the distribution of features in mixed categories schematized in (8b) where one set of features (coming from the root) governs the internal syntax and another, disjoint set of features (coming from the affix) governs the external syntax. It is in this sense that I submit that inflected words are also mixed categories.

### 1.3.2 Some Possible Objections

According to the ‘revisionist’ interpretation of the distribution of features in unmixed, inflected categories presented in the previous section, the only feature specification that is relevant to the external syntax of a phrase headed by an inflected word comes from the inflectional affix. However, this view contradicts widely held assumptions in the field that in inflected words, it is the POS specification of the root lexeme, via principles like the HFP, which determines the external syntax of the phrase that the lexeme heads. Inflectional specifications become indirectly relevant to distribution only insofar as they augment the POS specification coming from the root. This commonly held assumption about the relative priorities of the root/lexeme and inflectional affixes follow from specific postulates about inflectional morphology.

First, it is assumed that inflectional affixes do not bear POS specifications, or if they do, the specifications cannot differ from that of the root lexeme to which they attach (Selkirk 1982, Lieber 1980, 1992, *inter alia*). The reason this is so is because the root lexeme has priority in determining the type of inflectional affixes that may attach to it, and not vice versa. This idea is cashed out in various ways in the literature. For example, in Lieber (1992), it is assumed that the root lexeme has a *Categorial Signature* (CS) that specifies the kinds of inflections that can be attached to a given root. The notion of *Morphosyntactic Representation* (MSR) in realizational approaches to morphology (Anderson 1992) is also based on the primacy of the root lexeme over the inflectional affixes. We will henceforth call this idea the Assumption of Primacy of the Root.<sup>12</sup>

<sup>12</sup>In Stump (2001), a distinction is made between Inferential and Incremental theories of inflection, where in Inferential theories of inflection, inflectional categories are specified on the lexeme while in Incremental theories the attachment of inflectional affixes adds these categories

A second, related postulate about inflectional morphology holds that the morpho-syntactic features introduced by inflections augment those coming from the root (i.e., POS specification) *monotonically*. In this, inflectional morphology is different from derivational morphology because it is never category/feature-changing. We will call this the Assumption of Inflectional Monotonicity in this paper.

Now, if the two postulates identified above are valid, the ‘revisionist’ interpretation of inflected categories in (13) cannot be maintained. In the following section, I argue that there are instances of inflectional morphology that clearly contradict these postulates. There are languages where the POS specification of the root lexeme does not and cannot play any role in determining the external syntax of phrases headed by inflected words. In one such type of language, root lexemes cannot be involved in determining external syntax because they lack POS specifications to begin with. In another type of language, while roots do have POS specifications, inflectional affixes may attach to roots of more than one category. However, regardless of the POS of the root lexeme, the external syntax of phrases headed by inflected words is determined by properties of the distribution-determining inflection rather than the POS of the root lexeme. The assumption of inflectional monotonicity is similarly falsified when we examine the distribution of multiply inflected forms in certain languages.

## 1.4 The Case for Inflected Words as Mixed Categories

### 1.4.1 Bound Roots and Distribution-Determining Inflection

Predicate roots of native stock in Korean and Japanese are morphologically bound forms. In order for such roots to occur as independent words in syntax, a ‘closing’ inflectional suffix (called *congkyel.emi* in traditional Korean grammars) must be attached to the root or to the inflected stem. Only a ‘closing’ suffix can bring about this change. A non-closing suffix (called *sen.emal.emi*) cannot turn a root into an independent word, thereby giving it a syntactic distribution. This is illustrated below, where we see that the closing Mood suffix *-ta* in (14c) gives the phrase headed by the root *mek-* a syntactic distribution (as a root clause).

- (14) a. \*John-i pap-ul mek-  
           J-nom meal-acc eat
- b. \*John-i pap-ul mek-ess- (-ess: non-closing suffix)  
           J-nom meal-acc eat-pst-

---

to the root lexeme. The two positions described in this paragraph are Inferential theories, while the position we are arguing for in this paper is that at least in some languages, the Incremental view of inflection is justified.

## DUAL LEXICAL CATEGORIES AND INFLECTIONAL MORPHOLOGY / 15

- c. John-i pap-ul mek-ess-**ta** (-*ta*: closing suffix)  
J-nom meal-acc eat-pst-decl

The role of closing suffixes is not just to turn a bound root or stem into a free-standing word. The particular closing suffixes dictate the syntactic distribution of the phrases headed by the root lexeme to which they are attached. This is shown below in (15) where we see that the syntactic distribution of phrases headed by the lexeme ALUMTAP- ('beautiful') whose root is bound depends on the closing suffix that is attached to it.

For example, when the closing suffix is *-ta* (Declarative Mood), the phrase has the distribution of a root clause (cf. 15a), whereas if the closing suffix is *-ko* (one type of Comp), the distribution is that of an embedded clause sub-categorized by certain verbs (cf. 15b). The closing suffix *-e* (another type of Comp) yields an embedded VP selected by certain predicates (cf. 15c), and so on.

(15) Syntactic distribution of phrases containing the lexeme ALUMTAP-

- a. Root clause distribution [ \_\_\_\_ #]  
[kulim-i cham alumtaw-ass-**ta**]  
picture-nom very beautiful-pst-decl  
'The picture was very beautiful.'
- b. Embedded clause distribution [ \_\_\_\_ V<sub>x</sub>] (x=*sayngkakhata*, etc.)  
na-nun [ku kulim-i alumtap- $\emptyset$ -**ta-ko**]  
I-top that picture-nom beautiful-prs-decl-comp  
sayngkakha-n-ta  
think-prs-decl  
'I think that the picture is very beautiful.'
- c. Embedded VP distribution [ \_\_\_\_ V<sub>y</sub>] (y=*cita*, etc.)  
kunye-ka [acwu alumtaw-**e** ci-ess-ta]  
she-nom very beautiful-comp become-pst-cl  
'She became very beautiful.'
- d. Non-final verbal conjunct distribution [ \_\_\_\_ VP[*conj*]]  
[alumtap-**kena**] casangha-ta  
beautiful-or kind-decl  
'(She is either) beautiful or kind.'
- e. Modifier/adverbial distribution [ \_\_\_\_ V']  
[acwu alumtap-**key**] kulim-ul kuli-ess-ta  
very beautiful-comp picture-acc draw-past-decl  
'(She) drew the picture very beautifully.'
- f. Adnominal distribution [ \_\_\_\_ N']

[saykchay-ka alumtaw-**um**] kulim  
 color-nom beautiful-adnom picture  
 'picture whose colors are beautiful'

- g. NP distribution [ \_\_\_\_ V<sub>z</sub>] (*z=alta*, etc.)  
 [kunye-ka acwu alumtaw-**um**]-ul al-ko iss-ta  
 she-nom very beautiful-nml-acc know-comp be-decl  
 '(I) know that she is very beautiful.'

Since bound roots cannot have a syntactic distribution without a closing inflectional affix, the simplest analysis of the facts shown above would be to assume that it is the inflectional affix rather than the root that determines the distribution of phrases headed by bound root lexemes. However, this analysis contradicts the Assumption of Primacy of the Root that states that the root has primacy over the inflection in determining the distribution of the phrases it heads.

Suppose then that we try to re-analyze facts shown in (15) in conformity with the Assumption of Primacy of the Root. What would we need to do? First of all, we would need to assume that the root ALUMTAP- is endowed an MSR (or CS) that dictates which inflectional affixes are compatible with it. Of the inflectional affixes, the features coming from the class of closing affixes will augment that POS specification of the root to determine the exact syntactic distribution of the phrase that the root heads.

Now, while such an analysis is possible, it is unattractive on several accounts. First, unlike languages like English where forms identical to the root form of the lexeme (the BSE form of verbs) occur in certain syntactic contexts, in languages with bound roots, roots never occur by themselves in syntax. Thus, giving priority to the root for syntactic distribution even in the latter type of languages seems counterintuitive.<sup>13</sup>

Secondly, the Assumption of Primacy of the Root encounters problems in view of the fact that among the class of closing suffixes that can attach to the bound root ALUMTAP- are those that can shift the distribution of the phrase headed by the root to that of phrases headed by roots of a different POS. For example, the phrase in (15e) has adverbial distribution, as seen by the fact that underived adverbs has the same distribution as it (cf. 16a'). Similarly, the distribution of the phrase in (15g) is identical to that of underived nouns, as we see in (16b'). The phrase in (15f), which we will not illustrate here, has the distribution of demonstratives/adjectives.

<sup>13</sup>The fact that some inflected form is identical phonologically to the root form does not mean that a root form can occur in syntax. A root/lexeme never has a syntactic distribution even in languages without overt inflectional affixes. See section 4.3 for discussion.



## DUAL LEXICAL CATEGORIES AND INFLECTIONAL MORPHOLOGY / 17

- (16) a. [acwu alumtap-key] kulim-ul kuli-ess-ta (=15e)  
 very beautiful-comp picture-acc draw-pst-decl  
 ‘drew a very beautiful picture’
- a’. taychwung<sub>ADV</sub> kulim-ul kuli-ess-ta  
 carelessly picture-acc draw-pst-decl  
 ‘drew the picture carelessly’
- b. [kunye-ka acwu alumtaw-um]-ul al-ko iss-ta (=15g)  
 she-nom very beautiful-nml-acc know-comp be-decl  
 ‘(I) know that she is very beautiful.’
- b’. tap-ul<sub>N</sub> al-ko iss-ta  
 answer-acc know-comp be-decl  
 ‘(I) know the answer.’

Now, the behavior of the closing affixes in (15e-g) cannot be accounted for under the assumption that the features coming from the closing inflectional affixes simply augment the POS features coming from the root, as I shall now argue.

Let’s take the root ALUMTAP- to be a verb – [+V, –N]. Under the stated assumption, the root should only allow verbal inflectional affixes to be attached to it. However, as we see in (15f), for example, the closing affix has turned the distribution of the phrase headed by the root into something typical of nominals – [–V, +N]. Since under the Assumption of Primacy of the Root, inflectional affixes cannot alter the POS of the root, it must either be that some closing affixes are not inflectional (hence, derivational), or, the root has undergone conversion (zero-derivation) from verb to some other category (noun, in the case of 15f).<sup>14</sup> Neither of the two scenarios is plausible. For one, while the closing suffix turns the distribution of the phrases into something other than of verbs, they do not affect the internal syntax of the phrases headed by the verbal root. The supposition that the roots have undergone conversion encounters the same problems as the assumption that the closing affixes are derivational. Clearly, the root in (15g), for example, has not shifted to a noun, as can be seen from the internal syntax of the phrase that remains verbal. In contrast, if we make the assumption that the distribution of phrases headed by a bound root is determined by the closing inflection and not by the root, no problems arise and a unified account of the closing suffixes is possible.

It is noteworthy that descriptive Korean grammarians were aware of these facts, and investigated them under the rubric of “Dual Categorical Status” (*twu-cakyeok-pep*) of an inflected word. The idea was that the root determines the marking on its dependents (i.e., the internal syntax), while the distribution of the phrase projected from the root+affix combination is determined by the

<sup>14</sup>On the other hand, assuming that the distributional contexts in (15a-d) are verbal, the closing affixes in these sentences do not raise problems.

properties of the closing inflection. In other words, they had discovered that inflected words are like mixed categories in relevant respects.

### 1.4.2 Roots Lacking Category Distinctions

The argument against the Assumption of Primacy of the Root can be made in a stronger form in languages where roots are not only bound forms, but appear to lack POS distinctions. Jelinek & Demers (1994) argue that roots in Salish lack POS distinctions.<sup>15</sup>

As we can see below, phrases headed by the roots in Salish function as either sentences or noun phrases. However, which distribution the phrase projected from the root has is determined by the closing affixes. For example, a Determiner prefix/proclitic yields an NP/DP distribution, while Tense/Agreement suffixes/enclitics yield a clausal distribution. Since by assumption roots in Salish do not have POS specifications, they cannot be involved even indirectly in determining the distribution of the phrases they head. We thus have another, stronger, argument against the primacy of the root.

- (17) a. [<sub>IP</sub> čey=lə'=səŋ]  
work=past=1st.nom  
'I worked.'
- b. [<sub>NP</sub> cə= čey=lə']  
det=work=past  
'the (one that) worked.'
- c. [<sub>IP</sub> si'em=sə'=sx<sup>w</sup>]  
noble=fut=2sg.nom  
'you will be a chief.'
- d. [<sub>NP</sub> cə= si'em=sə']  
det=noble=fut  
'the (one that will be a) chief.'
- e. [<sub>IP</sub>[<sub>IP</sub> čey=∅] [<sub>NP</sub> cə=swəy'qə']]  
work=3rd.abs det=masculine  
'He works, the (one who is a) man.'

<sup>15</sup>I am aware that this position is controversial. If in fact these languages turn out to have POS distinctions in their roots, we can still come away with the weaker argument against the primacy of the root based on the boundness of roots, as the roots in these languages are bound in addition to possibly lacking POS distinctions.

Recent work on Distributed Morphology (Marantz 1997) attempts to argue for the existence of category-neutral roots even in languages like English. However, the argument offered is based on lexical semantic considerations in derivational morphology rather than morphosyntactic distribution.

Sapir's (1921:141ff) analysis of Nootka is similar to Salish as analyzed above.<sup>16</sup> Sapir notes that in Nootka a root like *inikw-* is neutral between a noun meaning ('fire') and a verb meaning ('burn'). We take this to indicate that this type of root lacks the POS distinction between nouns and verbs. Attachment of certain affixes to roots does not remove this indeterminacy. For example, the attachment of *-ihl* ('in the house'), *-'minih* ('plurality'), or *-'is* ('diminutive') to the root does not affect the noun-verb indeterminacy. However, other affixes, such as *-'i* ('article') and *-(m)a* ('indicative mood') do. The former yields an unambiguously nominal distribution while the latter yields a clausal/verbal distribution.

- (18) a. *inikw-* fire/burn  
 b. *inikw-ihl-* fire in the house/burn in the house  
 c. *inikw-ihl-'i* the fire in the house  
 d. *inikw-ihl-ma* (it) burns in the house  
 e. *inikw-ihl-'minih-'is* little fires in the house/burn plurally and slightly in the house  
 f. *inikw-ihl-'minih-'is-'i* the little fires in the house  
 g. *inikw-ihl-'minih-'is-a* (it) burns plurally and slightly in the house

We can analyze these facts as follows. First, we can assume that the root is category-neutral in Nootka. Among the affixes, *-ihl*, *-'minih* and *-'is* are category-neutral, whereas *-'i* and *-(m)a* are the distribution-determining closing affixes. The distribution of phrases headed by the root/stem is determined by the closing suffix. The primacy of the root is not found here.

### 1.4.3 Cross-categorical Inflectional Affixes

The argument against the primacy of the root has thus far been based on closing/distribution-determining affixes attaching to bound roots (section 4.1) and closing/distribution-determining affixes attaching to bound roots without POS distinctions (section 4.2). In this section, we show examples of closing/distribution-determining affixes that can attach to roots of different POS's and determine the distribution of the phrase.

In Korean, certain distribution-determining inflectional affixes can attach to either V or N (Cho & Sells 1995; Yoon 1995):

- (19) a. *Cheli<sub>N</sub>-ka* o-ass-ta  
 C-nom come-pst-decl  
 'Cheli came.'  
 b. *cip-ey* o-myense<sub>v</sub>-*ka* kacang coh-ta  
 home-loc come-v.comp-nom most good-decl  
 'On the way home is the most ideal (to do . . .).'

<sup>16</sup>Thanks to Jerry Sadock for pointing out the relevance of Sapir's work on Nootka.

As shown above, the nominative case-marker *-ka* attaches to verbs or nouns and yields constituents that combine with a V(P) (Cho & Sells 1995; Sells 1995). Unlike the closing affixes we saw earlier in (15), case-markers are constrained to attach to morphologically free forms. Thus, when they attach to verbs, they cannot attach to the bound root, but to verbs that carry complementizing affixes, which are themselves closing affixes. This is what we see in (19b) above. Cho & Sells (1995) show conclusively that comp-affixed verbs are not nouns and remain verbal. Thus, case-markers are cross-categorial inflectional affixes that attach to both nouns and verbs.

Coordination requires conjuncts to be of the same syntactic category. However, this generalization, known as the Law of the Coordination of Likes (LCL), is contradicted by the existence of Unlike Category Coordination. The argument we are developing in this paper sheds a different light on certain violations of LCL. What should matter for LCL is not the identity of the POS of the root, but that of the distribution-determining inflection. This is so if we think of the LCL in the following way. LCL appears to be a consequence of the fact that the external context of the coordination imposes the same distributional requirements on individual conjuncts that make up the coordinate structure, perhaps because coordinate structures are multiply headed (GKPS 1985) or otherwise parallel. Now, if what is relevant to external syntax is not the POS specification of the Head but an inflectional form specification introduced by the closing affix, it should not matter that the conjuncts belong to different POS's as long as they share the relevant inflection.

This prediction is borne out in Korean. Coordination of conjuncts headed by roots belonging to different POS is possible as long as both bear the same specification for case. For example, the external context of the coordinate structures in (20) requires a Nominative-marked phrase, and since this requirement is satisfied, it is of no consequence that the conjuncts belong to different POS's since both nouns and (comp-affixed) verbs are compatible with case-markers.

- (20) a. ku il-ul ha-ki-ey-nun [cemsim-sikan<sub>N</sub>]-ina [cip-ey  
dem work-acc do-nml-top lunch-hour-or home-loc  
o-myense<sub>V</sub>]-ka kacang coh-ta  
come-comp-nom most good-decl  
'During lunch hour or on the way home is the best time to do that  
kind of thing.'
- b. cemsim-sikan<sub>N</sub>-kwa cip-ey o-myense<sub>V</sub>-ka kulen il-ul  
lunch-hour-conj home-loc come-comp-nom that work-acc

ha-ki-ey kacang coh-ta  
do-nml-dat most good-decl

‘(During) lunch hour and on the way home are the best times to do that kind of thing.’

A similar analysis can be extended to cross-categorial predicative coordination in English. Sag et al. (1985) reinterpreted the challenge posed by (21a) to LCL by relaxing the condition on identity of categories in coordination to partial identity. The proposal is that since the NP and the AP in (21) share the specification for [+PRD] (cf. 21b), violation of LCL is permitted.

- (21) a. John is [<sub>NP</sub> a sailor] but [<sub>AP</sub> afraid of water].  
b. John is [[<sub>[+N,-V,+PRD]</sub> a sailor]  
but [<sub>[+N,+V,+PRD]</sub> afraid of water]].

However, this analysis is problematic in that it predicts coordination of unlike categories to be possible in other contexts. For example, since many syntacticians assume that nouns and adjectives share the [+N] specification, we should not need [+PRD] to allow the coordination of NP and AP. The following is predicted to be possible.

- (22) a. \*John [<sub>[+N,-V]</sub>] and young [<sub>[+N,+V]</sub>] walked in the door.  
b. \*John became [<sub>[+N,+V]</sub> disillusioned] and [<sub>[+N,-V]</sub> a terrorist].

The difference between (21) and (22) is that while the conjuncts in (21) have a shared inflectional specification that is relevant to selection/external syntax (i.e., [+PRD]), those in (22) do not.<sup>17</sup> Thus, even though the morphological decomposition of root and inflection is not visible in the predicative categories in (22), we can still find indirect evidence for the dissociation between the determinants of internal and external syntax. Seen in this light, the reason why cross-categorial coordination isn't found more widely in English is that while [+PRD] is a distribution-determining cross-categorial inflectional specification (i.e., an XFORM specification, where X=N,V,P), most other distribution-determining inflectional specifications are restricted to a given POS (i.e., they are VFORM, NFORM, PFORM, AFORM specifications).

#### 1.4.4 Assumption of Inflectional Monotonicity

Finally, we turn to the Assumption of Inflectional Monotonicity. The intuition behind this assumption is that while derivational affixes may bring about a

<sup>17</sup>For example, the conjuncts in (22a) can't share CASE, since CASE is plausibly an NFORM property in English. In Sag et al.'s (1985) account, (22a) is redundantly ruled out since \**young walked in the door* is not a well-formed string, so that the sentence is not decisive (P. Sells, p.c.). However, no such problems arise for (22b). I am assuming that Complement of *become*, unlike that of *be* does not have a [+PRD] specification.

non-monotonic change in the feature composition of the root to which they attach resulting in a category change, inflectional affixes don't. The most that inflectional affixes can do is to add information to the root or to an inflected stem (Selkirk 1982; Lieber 1980, 1992) or spell out features that are marked on the root lexeme (Stump 2001). We will examine this assumption critically in this section and show that it cannot be maintained in certain cases.

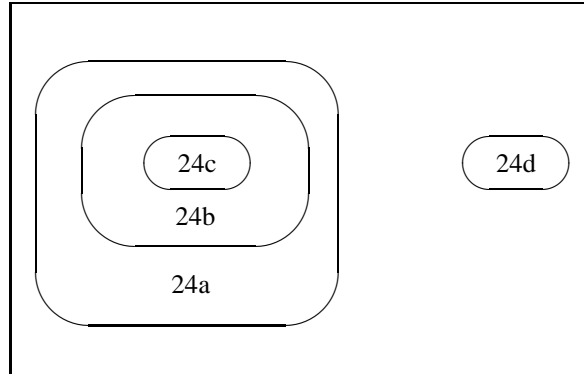
Monotonicity can be illustrated in terms of features. For example, the feature structures in (23b,c) monotonically extend that in (23a), while that in (23d) results in feature change, and hence is non-monotonic.

- (23) a. [+V, -N,  $\emptyset$ F]  
 b. [+V, -N, +F] (monotonic addition to 23a)  
 c. [+V, -N, +F, G] (monotonic addition to 23b)  
 vs.  
 d. [-V, +N, ... ] (non-monotonic change of 23a)

According to the Assumption of Inflectional Monotonicity, the change from (23a) to (23b,c) typifies inflectional morphology, while the change from (23a) to (23d) represents category-changing derivational morphology.

However, monotonicity as expressed in features can be misleading, since it is always possible to recode a non-monotonic change as monotonic using different feature systems. Therefore, we need to focus on the empirical phenomena modeled by the system of features. Since we are dealing with syntactic categories and distinct categories constitute distinct distribution classes, the intuition behind monotonic and non-monotonic feature changes involving categories can be expressed as follows.

(24)



(24a) and (24d) represent different syntactic categories, with non-overlapping distributions. The idea that inflectional morphology monotonically adds information to the root, when translated into claims about distribution, means that an inflected member of a root category has a narrower distribution than the uninflected root category. A similar relation should hold when multiple inflections are added to the root. That is, (24b), representing an inflected member of the root category (24a), occurs in a subset of contexts where the root in (24a) does, and (24c), representing a form where additional inflection is added to (24b), occurs in a subset of contexts where (24b) occurs.

There are two ways in which the actual distribution of phrases is syntax is unlike that pictured in (24). First, a root specified only with POS features [+V, -N] by itself never has a syntactic distribution. That is, this feature specification does not define an actual distribution class. For example, in English, categories with [+V, -N] specification have syntactic distributions only in tandem with a distribution-determining inflectional VFORM feature. The specification [+V, -N] picks out the union of non-overlapping distributional contexts defined by each VFORM value, but it is not by itself an actual distribution class. This is not to say there are no other properties which make reference to the [+V, -N] specification. For example, matters pertaining to internal syntax such as adverbial vs. adjectival modification and patterns of case-marking seem sensitive to the POS specification alone and not to VFORM specifications. However, matters pertaining to distribution/external syntax are never sensitive to it. Thus, Noun roots and Verb roots might differ from each other in many ways, but not in virtue of being different distribution classes.<sup>18</sup>

<sup>18</sup>The work of Baker (forthcoming) tries to ground the difference between Noun (roots) and Verb (roots) in terms unrelated to distribution. In this sense, his is similar to the position we defend here.

Another way in which the picture in (24) is less than adequate is the following. While the attachment of an inflection to a root or to an already inflected root can be modeled as monotonic addition, when we examine the distributions of inflected forms, we see that the relationship is not monotonic. We have just seen that one cannot compare the distribution of the uninflected root with an inflected form, since roots don't define an actual distribution class. Therefore, we need to examine the situation depicted in (24b) vs. (24c). What we need to determine is whether the distribution of the form with the feature make-up shown in (24b) is a super-set of that in (24c).

The situation depicted above does not commonly arise, since in most languages at most one inflectional affix is distribution-determining (cf. Nootka and Salish in section 4.2). However, in Korean (and Japanese), it is possible to attach a distribution-determining inflectional affix to a root that is already attached with one (Cho & Sells 1995; Sells 1995). The contrast between (25a) and (25b) exemplifies this possibility.

The affixation of a second closing affix in (25b) can be expressed in terms of features as a monotonic addition to the set of features in (25a).

- (25) a. [+V, -N] (e.g., *alumptap-*)  
 b. [+V, -N, *decl*] (e.g., *alumtap-ta*)  
 c. [+V, -N, *decl, comp*] (e.g., *alumtap-ta-ko*)

However, when we examine the distribution, which is what is really at stake, (25c) does not occur in a subset of contexts where (25b) occurs. The form in (25b) has a root clause distribution, while that in (25c) has an embedded clause distribution. A similar instance of non-monotonic change occurs in the nominal system.

- (26) a. Cheli-eykey [+N, -V, I-CASE:*dat*]  
 b. Cheli-eykey-uy [+N, -V, I-CASE:*dat*, S-CASE:*gen*]

Examining the feature structures associated with (26a) and (26b), we see that the latter is a monotonic extension of the former. However, in terms of the distribution of the two forms, (26b) does not occur in a subset of contexts where (26a) occurs. The former occurs in construction with V(P), while the latter occurs in construction with N'/NP.

Thus, multiple inflectional affixation does not obey the monotonicity constraint.<sup>19</sup> We need to allow inflection to bring about the change from one distribution class to another.

---

At some level of abstraction, the position in this paper is also consistent with the view of categories endorsed in Distributed Morphology (Marantz 1997) that there is only one underspecified lexical-root category and that distributional differences among attested lexical categories are due to the functional-inflectional heads that the root is in construction with.

<sup>19</sup>Sells (1995) was aware of this fact, and allowed the distribution-determining TYPE affixation in his system to be non-monotonic.



### 1.4.5 Inflected Words are Mixed Categories

The arguments presented in section 4 all point to the independence of the features contributed by the root and those coming from the distribution-determining inflection. In all cases, the distribution of a phrase is determined exclusively by information coming from the inflection and not the root. It is in this sense that a run-of-the-mill inflected word is fundamentally similar to mixed categories. The determinant of the external syntax and that of the internal syntax are different components of the head. This calls for a unified analysis of the morphosyntactic mismatches in the two types of structures.

## 1.5 Unified Analyses of Morphosyntactic Mismatches

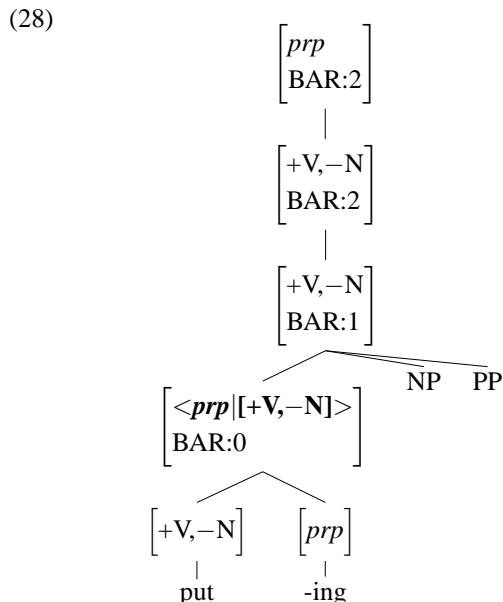
Under either broadly lexicalist or non-lexicalist set of assumptions, the unity of inflectional and mixed categorical morphosyntactic mismatches can be modeled without much difficulty. We start with a unified lexicalist analysis and then turn to representative non-lexicalist analyses.

### 1.5.1 Extended DLC Theory: (Lapointe 1999)

What we have shown up to this point is that the pattern of feature passing depicted by HFP as currently understood in lexicalist circles never exists. Therefore, a natural way to accommodate the conclusion of this paper within lexicalist approaches is to abandon the HFC as a principle of grammar and to adopt the DLC in a modified form in its place. We can do this by relaxing the constraints on X,Y in  $\langle X|Y \rangle$  so that inflectional morphosyntactic features can be the component parts of asymmetrical DLCs. This is illustrated below. For example, the feature composition of the DLC 'putting' in (27a) predicts that the phrase headed by it has the distribution of PRP while V will determine the internal syntax of the phrase.

- (27) a. /putting/:  $\langle \text{PRP}|\text{V} \rangle$   
 b. /stolen/:  $\langle \text{PSP}|\text{V} \rangle$   
 c. /sailor/:  $\langle \text{PRD}|\text{N} \rangle$   
 d. /afraid/:  $\langle \text{PRD}|\text{A} \rangle$

An Extended DLC analysis of the relevant parts of (2) introduced earlier is given below.



It seems to me that the DLC theory is unique among lexicalist approaches in that it can be easily modified to provide a unified account of inflectional and mixed category mismatches. As far as I can tell, other theories of mixed categories in the lexicalist camp, such as Malouf (2000), do not lend themselves to such an easy adaptation. Nor can approaches based on HFC be trivially revised as an account of mixed categories, as already shown in section 2.

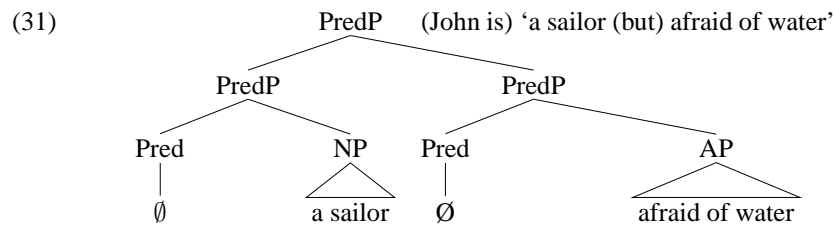
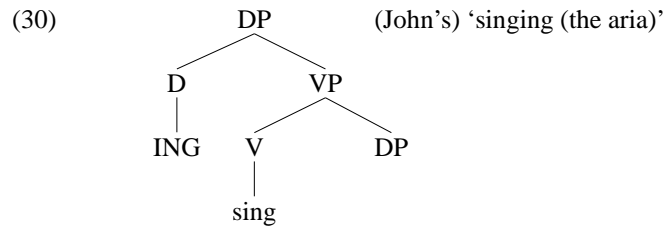
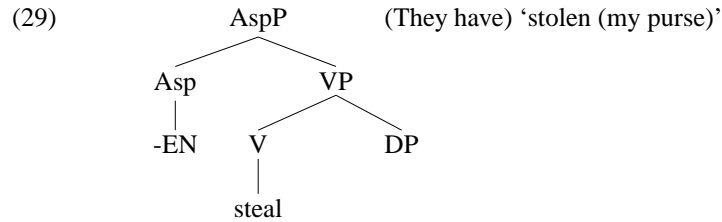
### 1.5.2 Functional vs. Lexical Categories

Another way to unify inflected and mixed categories is to adopt the assumptions of non-lexicalist research and posit two distinct categories at the level of syntax for both. Such proposals abound (Abney 1987, Borsley & Kornfilt 2000, Pollock 1989, among many others). In fact, as stated in the beginning of the paper, non-lexicalist analyses have assumed, for the most part, that the two types of mismatches are not different.

In this type of account, inflected words and mixed categories behave alike because both of them are represented by two formatives – functional-inflectional and lexical-root categories – as far as syntax is concerned, the two elements appearing as a word in terms of morphology-phonology only (by Head Movement or Merger). That external distribution refers to the information coming from the affix is guaranteed in this approach since the functional head corresponding to the affix is guaranteed in this approach since the functional head corresponding to the affix is the outer layer of the projection of the root. In turn, the internal syntax of the phrase is predicted to be sensitive to the

properties of the lexical-root category, since the root selects its dependents within its own projection.<sup>20</sup>

Schematic non-lexicalist analyses are given below for both inflectional (29a,c) and mixed (29b) categories. Under this type of approach, predicative coordination can be reduced to like-category coordination under the assumption that PRED is a functional-inflectional head, as shown in (29c).



## 1.6 Conclusion

In this paper I have shown that the morphosyntactic mismatches found in inflection and those found in mixed categories are one and the same at the right level of abstraction. A corollary of this demonstration is that a unified account

<sup>20</sup>The prediction holds for (c/s)-selection of dependents by the lexical-root category. Other aspects of internal syntax may be determined by (internal syntactic) properties of the functional head that the root projection is in construction with. For example, in many non-lexicalist approaches, functional categories are implicated in (internal-syntactic) feature-checking relations such as case-marking and agreement of dependents selected by the root category.

of the two types of mismatches is called for, regardless of one's theoretical leanings towards the Lexicalist Hypothesis. I have shown that while non-lexicalist approaches relying on functional categories and Head Movement (Merger) can easily offer unified accounts of the two types of mismatches, among lexicalist accounts, the DLC theory is unique in being flexible enough to offer an easy unification. Relative merits and demerits of lexicalist and non-lexicalist accounts may be, and have been, debated, on conceptual and empirical grounds (Baker 1988; DiSciullo & Williams 1987, among many others). I have steered clear of that debate, since my purpose in this paper has been to argue for the fundamental unity of two types of mismatches and to offer it as a generalization that both lexicalists and non-lexicalists will have to cope with.

### 1.7 References

- Abney, S. (1987) *The English Noun Phrase in its Sentential Aspect*, Ph.D dissertation, MIT
- Anderson, S. (1982) 'Where's Morphology?' *Linguistic Inquiry* 13.571–612.
- Anderson, S. (1992) *A-Morphous Morphology*, Cambridge: Cambridge University Press.
- Baker, C-L (1985) *English Syntax*, 2<sup>nd</sup> Edition, Cambridge: MIT Press
- Baker, M. (1988) *Incorporation*, Chicago: University of Chicago Press.
- Baker, M. (2002) *Verbs, Nouns, and Adjectives: Their Universal Grammar*, Cambridge: Cambridge University Press
- Benmamoun, E. (2000) *The Feature Structure of Functional Categories*, Oxford: Oxford University Press.
- Bobaljik, J. (1994) 'What does Adjacency Do?' In *MIT Working Papers in Linguistics 22: The Morphology-Syntax Connection*, 1–32, Department of Linguistics, MIT.
- Borsley, B., and J. Kornfilt (2000) 'Mixed Extended Projections', in B. Borsley ed., *The Nature and Function of Syntactic Categories*, New York: Academic Press, 101–131.
- Cho, Y-M Yu, & P. Sells. (1995) 'A Lexical Account of Inflectional Suffixes in Korean,' *Journal of East Asian Linguistics* 4.119–174.
- Chomsky, N. (1965) *Aspects of the Theory of Syntax*, Cambridge: MIT Press.
- Chomsky, N. (1971) 'Remarks on Nominalizations', In R. Jacobs and P. Rosenbaum eds., *Readings in English Transformational Grammar*, 184–221, Waltham: Ginn and Company.
- DiSciullo, A-M., and E. Williams. (1987) *On the Definition of Word*, Linguistic Inquiry Monograph, Cambridge: MIT Press.

- Embick, D., and R. Noyer (2001) 'Movement Operations after Syntax', *Linguistic Inquiry* 32.555–595.
- Gazdar, G., E. Klein, G. Pullum, and I. Sag (GKPS). (1985) *Generalized Phrase Structure Grammar*, Cambridge: Harvard University Press.
- Hale, K. & P. Platero. (1985) 'Parts of Speech,' In P. Muysken & H. van Riemsdijk eds., *Features and Projections*, 31–40, Dordrecht: Foris Publications.
- Halle, M., and A. Marantz. (1993) 'Distributed Morphology and the Pieces of Inflection,' In K. Hale & S-J. Keyser eds., *The View from Building 20*, 111–176, MIT Press.
- Halpern, A. (1994) *On the Placement and Morphology of Clitics*, Stanford, CSLI Publications.
- Haspelmath, M. (1995) 'Word-class Changing Inflection and Morphological Theory', *Yearbook of Morphology 1995*, 43–66.
- Hudson, R. (1987) 'Zwicky on Heads,' *Journal of Linguistics* 23:109–132.
- Jackendoff, R. (1977) *X-Bar Syntax*, Cambridge: MIT Press.
- Jelinek, E. & R. Demers (1994) 'Predicates and Pronominal Arguments in Straits Salish,' *Language* 70.697–732.
- Lapointe, S. (1980) *A Theory of Grammatical Agreement*, Ph.D dissertation, University of Massachusetts, Amherst.
- Lapointe, S. (1993) 'Dual Lexical Categories and the Syntax of Mixed Category Phrases,' *Proceedings of the Eastern States Conference on Linguistics*, 199–210. Cornell University Working Papers in Linguistics.
- Lapointe, S. (1999) 'Dual Lexical Categories vs. Phrasal Conversion in the Analysis of Gerund Phrases,' In P. DeLacy and A. Nowak eds., *University of Massachusetts Occasional Papers in Linguistics 24 : Papers from the 25th Anniversary*, GLSA, University of Amherst, 157–189.
- Lieber, R (1992) *Deconstructing Morphology*, Chicago: University of Chicago Press.
- Malouf, R. (2000) *Mixed Categories in the Hierarchical Lexicon*, Stanford:CSLI Publications.
- Marantz, A. (1984) *On the Nature of Grammatical Relations*, Cambridge: MIT Press
- Marantz, A. (1997) 'No Escape from Syntax: Don't Try Morphological Analysis in the Privacy of Your Own Lexicon', In A. Dimitriadis ed., *University of Pennsylvania Working Papers in Linguistics* 4, 201–225.
- Pollard, C., and I. Sag. (1994) *Head-Driven Phrase Structure Grammar*, Chicago: University of Chicago Press.

- Pollock, J-Y. (1989) 'Verb Movement, UG, and the Structure of IP,' *Linguistic Inquiry* 20.365–424.
- Sag, I., G. Gazdar, T. Wasow, and S. Weisler (1985) 'Coordination and How to Distinguish Categories,' *Natural Language and Linguistic Theory* 3.117–171.
- Sapir, E. (1921) *Language*, New York: Harcourt, Brace and Company.
- Selkirk, E. (1982) *The Syntax of Words*, Linguistic Inquiry Monograph, Cambridge: MIT Press.
- Sells, P. (1995) 'Korean and Japanese Morphology from a Lexical Perspective,' *Linguistic Inquiry* 26.277–325.
- Spencer, A. (1998) 'Transpositions and Argument Structure,' *Yearbook of Morphology 1998*, 73–102.
- Stump, G. (2001) *Inflectional Morphology: A Theory of Paradigm Structure*, Cambridge: Cambridge University Press.
- Yoon, J. (1995) 'Nominal, Verbal, and Crosscategorical Affixation in Korean,' *Journal of East Asian Linguistics* 4.325–356.
- Zwicky, A. (1985) 'Heads,' *Journal of Linguistics* 21.1–30.