A Revision of Persian Past Tense Inflection: A Distributed Morphology Approach

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Received: 31/01/2017 Accepted: 06/06/2017

1- INTRODUCTION

Distributed Morphology (DM) introduced in Halle and Marantz (1993, 1994) in the early 1990s is a grammatical model that has emerged within the framework of Principles and Parameters. DM which represents a set of hypotheses about the interaction among components of grammar, including Morphology, syntax and phonology claims that the complex structure of a word is created in the same way as is the complex structure of a phrase or sentence. It is important to say that Distributed Morphology is a framework within the Minimalist Program (MP) which rejects the Lexicalist hypothesis and the notion of a generative lexicon (Siddiqi 2009). In this linguistic model, there is only one generative component of the grammar (the syntax) whereas in Lexicalist Minimalism, there are two (the syntax and the lexicon). The four fundamental differences between DM and Lexicalist Minimalism to be mentioned here are categorization, late-insertion, morphosyntactic decomposition, and underspecification. These key notions are very important for my revision in the Persian past tense inflection.

2- Key Concepts: Root and Root Allomorphy

As I told above, there are four characteristics that distinguished DM from MP. But before going through them, I should briefly discuss what is meant by Root and Root Allomorphy in DM. These two concepts are continuously referred through this article. In addition to functional morphemes, the grammar contains morphemes that are called Roots. By definition, Roots are the members of the open-class vocabulary of a language. This part of the vocabulary is typically thought of as connecting with concepts: a system of mental representations of classes, which exists outside of the grammar (Embick 2015 for an overview). The representation and use of Roots is a complex issue, because of their dual nature as grammatical objects that have important connections with (presumably) extragrammtical cognitive systems. A hypothesis that has been adopted in much work is that Roots can be represented by different allomorphs at the PF. Within this framework I will show that a Root like √*bin* (see) has two different allomorphs in Persian, one of them is *bin* and the other one is *di*. This article proposes an analysis of root allomorphy (e.g., *ketāb* "book"/ *kotob* "books") within the framework of DM that showcases the economy constraint minimize exponence. It also accomplishes two

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other things: First, following Siddiqi (2009), it proposes some of the revisions to the framework of DM in related to the root allomorphy and readjustment rules. Second, it provides an analysis of verbal allomorphy in Persian (e.g., *bin/ di*). It should be emphasized that when roots appear in the derivation, they do not have grammatical category. This is the first difference between DM and MP which is discussed in the next part.

3- Theoretical Framwork

The theoretical framwork of DM is based on the following characteristics.

3-1- Categorization

An important property of Roots is that they have no grammatical category inherently. This assumption derives from earlier work on derivational morphology. According to the category-free theory of Roots, traditional lexical categories like 'noun' or 'verb' or 'adjective' are convenient shorthand labels that refer to syntactic structures in which a Root combines with a category-defining functional head such as little *n* or *v* or *a*. This is what happens for that a root like √*bin* (see). During the derivation, it may merge with a little noun head to generate the noun *bineš* (vision), or it can absorb a little adjective head for producing *binande* (viewer) and so on.

3-2- Late insertion

Terminologically, theories that allow for morphemes to receive phonological form after they are combined in the syntactic component are said to have late insertion process. In DM, unlike in GB and its Lexicalist derivatives, rather than manipulating fully formed words, the syntax only manipulates abstract formal features to generate syntactic structures. These morphosyntactic features (such as [plural] and [past]) are selected from a fixed list of abstract features (or feature bundles) rather than being selected from the output of a generative lexicon. The late insertion hypothesis (Halle & Marantz 1994) holds that the phonology which represents the morphological features manipulated by the syntax is provided at PF rather than being present throughout the derivation. At spellout, syntactic terminals in DM are entirely comprised of interpretable features (including roots). Only once all syntactic processes are finished with the structure is phonological content added. This phonology is provided by a component of the grammar called the Vocabulary. The Vocabulary is a static list of items whose function in the grammar is to provide phonology to realize the interpretable features contained in the terminal nodes of a derivation so that that derivation can be pronounced. Individual items within this list are called Vocabulary Items (or VIs for short).

3-3- Morphosyntactic decomposition

One of the strengths of the Distributed Morphology framework is the parallel between syntactic structure and morphological structure. Since the grammar of DM manipulates only syntactic features, the complex structure of a word is created in the same way as is the complex structure of a sentence. Spelling out a complex constituent of the syntax as a "phrase" or a "word" depends on the nature of VIs in

the structure. In this model not only the verb *mi-binam* (I see) is produced in syntax, but also the noun *bineš* (vision) is derived in the same component.

3-4- Underspecification

Distributed Morphology uses underspecification in the insertion of Vocabulary Items into a terminal node of the syntax. The insertion of a VI is governed by the subset principle which allows for a VI with certain specifications to be inserted into any node that satisfies those specifications, regardless of whether or not it exceeds those specifications. This characteristic of DM is very important for my proposal regarding to past inflection in Persian.

4- Results & Discussion

Based on the above theoretical framework, I try to investigate the properties of the functional heads such as T and Agr to which verbal elements adjoin and show how past tense suffixes and phi-features are absorbed by the verbs. To account for this**,** first I briefly review the literature on the Modern Persian tense affixes and root allomorphy, before providing a survey of DM, specifically focusing on how it is different from Lexicalist Minimalism. In line with what holds for verb movement in simplex and complex predicates, I will discuss in detail that lexical and grammatical verbs within the little vP move to T via a post-syntactic operation, i.e. morphological merger, to pick up inflectional morphology. Contrary to the claim in the literature, I finally suggest that the automatic phonological alternation "-d/ -t" is the only past tense affix in Persian (this explanation is also true for the past participle and infinitive affixes). According to this analysis, there are no present or past stems in Persian, but a Root like "√bin" (*see*) has two allomorphs "bin" and "di" while condition under which they occur is predictable and can be described in purely phonological (not morphological) terms: the latter must always be inserted immediately before a morpheme with an initial /d/, and the former obeys elsewhere condition. This conclusion is based on the underspecification and subset principle introduced above.

5- Conclusions

The present study shows that:

1. The automatic phonological alternation "-d/ -t" is the only past tense affix in Persian.

2. The automatic phonological alternation "-de/ -te" is the only past participle affix in Persian.

3. The automatic phonological alternation "-dan/ -tan" is the only infinitive affix in Persian.

4. A Root like "√bin" (*see*) has two allomorphs in Persian:

4-1- Di: appears before an affix with an initial /d/, such as: didār, dide, didan, didam.

4-2- Bin: appears elsewhere, such as: bineš, binande, binā, mi-binam.

Keywords: Root, Past tense affix, Morphological merger, Fusion, Fission.