MÍR CURAD

STUDIES IN HONOR OF CALVERT WATKINS

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Theoretical Aspects of Indo-European Nominal Morphology: The Nominal Declensions of Latin and Armenian

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1. Introductory Remarks

Below we review some basic facts of the nominal declension of Latin and Armenian in light of the proposals advanced by Halle and Marantz 1993, 1994, and elsewhere under the label of Distributed Morphology. Our purpose is to bring out certain regularities in the data that have escaped previous analyses and thereby to contribute towards a better grasp of the evolution of the Indo-European declension and of the theoretical conceptions in terms of which these analyses are framed.

2. Latin Nominal Declension

In many studies of the Latin declension it is noted that the noun consists of three parts: a Stem, a Theme, and an Ending. This is illustrated in (1), where we have reproduced the paradigm of the fifth declension noun *die:s* 'day'.

(1)

	Singular	Plural
Nominative	*di-e:-s*	*di-e:-s*
Accusative	*di-e-m*	*di-e:-s*
Genitive	*di-e:-i:*	*di-e:-r-um*
Dative	*di-e:-i:*	*di-e:-bu-s*
Ablative	*di-e:*	*di-e:-bu-s*

Most forms in the paradigm show the three parts overtly. Of the four forms that do not conform to this tripartite pattern, the Ablative Singular is only a superficial exception in that it has an Ending, but its phonetic exponent is NULL (∅), the phonetic zero. The remaining three forms have bipartite Endings whose appearance will be explained below.

The theory of Distributed Morphology assumes that both sentences and words have the familiar structure of nested trees. The terminal elements of the trees—i.e., the *morphemes*—consist of complexes of features, phonological as well as other sorts. The fact that the phonetic properties of words play no role in the syntax is captured formally in Distributed Morphology by positing that in the earlier stages of the derivation the terminal nodes of the sentences are devoid of phonetic information, and contain only morphological and syntactic features. At the point in the derivation where phonological content is inserted, a nominal word (i.e. an adjective or a noun) in Latin has the tripartite structure in (2).

2)   Nominal

            Base

     Stem   Theme   Ending
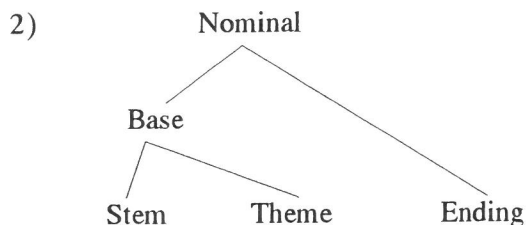
It is into the terminal nodes of (2) that the phonetic exponents of the morphemes are inserted. The exponents of the different morphemes of the language are contained in a list called the *Vocabulary*. For presentational purposes, we can think of the Vocabulary as being organized into different sub-lists, each list composed of items competing for insertion into a particular terminal morpheme. Given (2), the Vocabulary will include three sub-lists, one made up of nominal stems, a second of the exponents of the Theme morpheme, and a third of Endings.

The nominal Vocabulary entries, which are inserted into the stem morpheme, contain, in addition to the relevant phoneme sequences, certain morphological information, specifically information about the declension class and the grammatical Gender of the Stem. Since the grammatical Gender of a noun is often not deducible from its meaning, the Gender of noun stems must be memorized, and this fact is reflected in the inclusion of Gender information in the Vocabulary entry of many noun Stems.

Gender and declension class are correlated to a high degree in Latin. In particular, nouns of the fifth declension are almost exclusively [+feminine], whereas those of the fourth declension are [-feminine]. By contrast, in the first and second declensions it is Gender that determines declension class. To deal with these facts formally we shall assume that Latin morphology includes the rules in (3), which supply Gender and declension class information respectively to noun stems that lack this information in their Vocabulary representations.

(3)   a.   [IV] $\Rightarrow$ [-fem]   4th declension $\Rightarrow$ masc, neut

       b.   [V] $\Rightarrow$ [+fem]   5th declension $\Rightarrow$ feminine

       c.   [+fem] $\Rightarrow$ [I]   feminine $\Rightarrow$ 1st declension

       d.   [ ] $\Rightarrow$ [II]   elsewhere $\Rightarrow$ 2nd declension

Implicit in (3) is the assumption that Latin noun stems are supplied with both Gender and declension class information systematically only in class III and sporadically in classes I, II, and V. Rules (3a) and (3b) provide Gender information to noun stems of classes IV and V, whereas the rules in (3c) and (3d) supply declension class information to nouns of classes I and II. Rules (3c) and (3d) play a particularly important role in the case of adjectives, for unlike nouns, adjectives never have inherent gender.[1]

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[1] It is for this reason that in most languages 'pregnant males' and 'manly females' are

Declension class determines the choice of Theme vowel. This choice is reflected formally by positing that the Vocabulary contains the sub-list of items in (4) which compete for insertion in the Theme morpheme in (2).

(4) a / [I] + _____
    o / [II] + _____
    i / [III] + _____
    u / [IV] + _____
    e: / [V] + _____

The Ending morpheme in (2) is the repository of information about both Number and Case. It is assumed here that like phonemes, morphological categories are bundles of binary features. The two grammatical Numbers of Latin are straightforwardly represented by the feature [±plural], and the three Genders of the language are complexes of the features [±feminine] and [±neuter].

There is at this time no agreed upon feature system for Case. The feature table in (5) and the informal descriptions just below it are the best that we have been able to construct from informal consultations with colleagues and out of various proposals in the literature (see Jakobson 1936, 1958, Calabrese (to appear)).

(5) Proposed Case Features:

	Nom	Acc	Gen	Dat	Loc	Instr	Abl	Erg
oblique	-	-	+	+	+	+	+	-
structural	+	+	+	+	-	-	-	+
superior	+	-	-	+	-	+	+	+
free	+	-	+	+	-	-	+	-

The feature specification [-oblique] is assigned to nominals that are arguments of the verb; [+oblique] is assigned to nominals that are not arguments of the verb. The feature [-structural] is assigned to nominals on non-structural, semantic grounds; [+structural] is assigned to nominals on the basis of their position in the syntactic structure, exclusively. The feature [-superior] is assigned to nominals in governed positions in the syntactic structure; [+superior] is assigned to nominals in non-governed positions. [-free] is assigned to nominals with a consistent role in argument structure; [+free] is assigned to nominals whose role in argument structure varies.
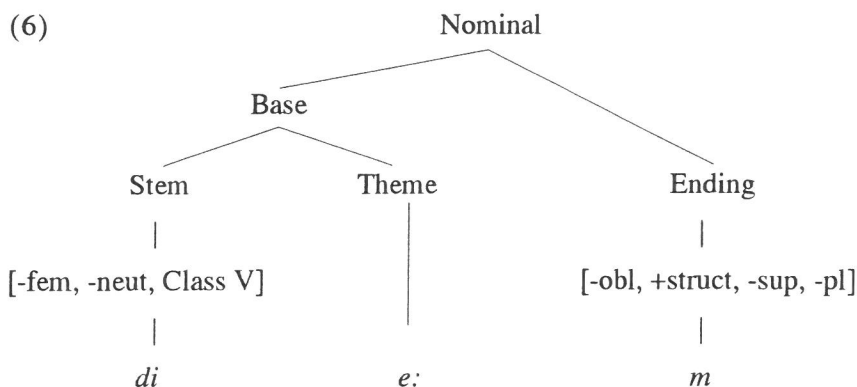
Since Latin has only the first five of the eight Cases in (5), we shall assume that Latin makes no distinctive use of the feature [free]. This assumption is based on analogous reasoning familiar from phonology, where the absence in a language of clicks or glottalized consonants, for example, is accounted for by

_____

morphologically well-formed expressions.

omitting the relevant features in the feature table of the phonemes. Seven of the eight Cases figure in Armenian, which employs all four features.

Anticipating the effects of Vocabulary insertion in the Ending (Number-Case) and a special Theme Shortening rule, which are discussed below, the Accusative Singular form *di-e-m* 'day' will emerge at the output of the morphology as shown in (6).

(6)   Nominal

                          Base

              Stem   Theme   Ending

                | | |

    [-fem, -neut, Class V]   [-obl, +struct, -sup, -pl]

                | | |

               di   *e:*   *m*

In Distributed Morphology, Vocabulary Items such as those illustrated in (4) are inserted in specific terminal morphemes only if they satisfy the contextual conditions stated in the entry in the manner described in (7). Thus, as indicated in (4), the different Theme vowels are chosen depending on the declension class of the noun stem. Since the stem *di* belongs to the fifth declension, the suffix chosen here is *e:*, which loses its length by virtue of the application of a readjustment rule (cf. (19c)).

The contextual conditions in (4) mention only part of the features that are present in (6). Specifically, none of the items in (4) takes formal account of the fact that noun stems commonly contain information about grammatical Gender. This is an illustration of the 'subset' principle in (7) that governs the insertion of Vocabulary entries into terminal morphemes.

(7)   The phonological exponent of a Vocabulary Item is inserted into a
        terminal morpheme if the item matches all or a subset of the
        grammatical features specified in the terminal morpheme. Insertion
        does not take place if the Vocabulary Item contains features not
        present in the morpheme. Where several Vocabulary Items meet the
        conditions for insertion, the item matching the greatest number of
        features specified in the terminal morpheme must be chosen.

In order to see how Vocabulary Insertion works in Latin nouns, consider the forms of the fifth declension noun *di-e:-s* 'day' in (1). Examination of the Endings in (1) shows that there are only two Endings in the Plural, *um* and *s*,[2] but

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[2] We discuss *r* and *bu* below.

that there are four endings in the Singular: *m*, *i:*, Ø (NULL), and *s*. The simplest case here is the Genitive Plural *um*. This Ending figures only in the Genitive Plural and, in fact, is the exponent of the Genitive Plural in all declensions. We therefore assume that its Vocabulary entry is fully specified as shown in (8) below. By contrast, the *s* Ending figures in all other Cases of the Plural as well as in the Nominative Singular. Since, given the features in (5), this set of Cases can have no common denominator, we assume that *s* is the default exponent, i.e. an exponent that is inserted without matching any of the features in the terminal morpheme. In the Singular, we find *m* in the Accusative, *i:* in the Genitive/ Dative, and Ø (NULL) in the Ablative. These simple observations suggest the Vocabulary entries in (8).

(8)   *um*   ⇔   [+obl, +struct, -sup, +pl]   Genitive Plural
      i: ⇔   [+obl, +struct, -pl]   Genitive/Dative Singular
      m   ⇔   [-obl, -pl]   Accusative Singular
      Ø   ⇔   [-pl]   Singular default
      s   ⇔   [ ]   default

Given the Vocabulary Items in (8), the insertion of the Number-Case exponent into the Accusative Singular morpheme of *di-e-m* (4) proceeds as follows. The most specific Item in (8)—i.e., *um*—is considered first. This Item is not inserted because it fails to match the features [-oblique,-sup,-pl] in the morpheme. The next Item in (8) *i:* is also rejected, for it fails to match the feature [-pl] in the Accusative Singular morpheme. No such conflict arises between the features of the *m* entry in (8) and those of the Accusative Singular morpheme; this Item is therefore inserted.

In the fifth declension and elsewhere, *i:* figures both in the Genitive and the Dative ~~Plural~~. Instead of listing these as two separate Items, we have included in (8) only a single Item, which contains only the features that Genitive and Dative share. In view of the subset condition (7) that governs insertion of Vocabulary Items into terminal morphemes, this underspecification allows *i:* to be inserted into morphemes with the full complement of features for either Genitive or Dative.

A somewhat different problem is posed by the insertion of the default entry *s* in the Nominative Singular. The feature complement of the Nominative Singular is

(9)   [-oblique, +superior, +structural, -plural]

Given the entries in (8), this feature complex would result in the incorrect insertion of *m*.

To avoid this we might contemplate adding to (8) a second *s* entry to be inserted in morphemes with the feature complement in (9). While this brute

force solution yields the correct output, it does so at the high cost of adding a fully specified Vocabulary entry, homophonous with another entry.

A less arbitrary solution becomes available by capitalizing on the fact that a default entry like *s* is inserted into a morpheme without matching any of the latter's features. As a consequence *s* will be inserted into the Nominative Singular morpheme provided that some means is found to prevent insertion of any of the other morphemes in (8). To this end we have recourse to a rule of Impoverishment, a special device made available by the Morphology that deletes features in terminal morphemes (for details on Impoverishment, see Halle and Marantz 1994 and Halle 1997). In the present instance we posit the Impoverishment rule in (10a), which deletes [-plural] in Nominative endings of [-neuter] nouns. The only item in (8) that can be inserted into the impoverished morpheme is then the default *s*. This is illustrated in (10b).

(10)   a. [-plural] → Ø / [-neuter] + [____ -oblique, -superior]
          b. [*di*; -feminine,-neuter; V] +
              [+direct, -oblique, +structural, +superior, -plural]
              ↓
              [+direct, -oblique, +structural, +superior]
              ↓
              [*s*; +direct, -oblique, +structural, +superior]

Below we extend rule (10a) somewhat so as to apply in certain Genitive Singular morphemes as well, and we briefly discuss its interaction with another Impoverishment rule.

We still need to account for the presence of *r* in the Genitive Plural and of *bu* in the Dative/Ablative Plural. What differentiates these two from the rest of the Endings in (1) is that each consists of two pieces—*r+um* and *bu+s* respectively. To account for this bipartite structure, we posit that the Genitive Plural and Dative/Ablative Plural morphemes of the fifth declension (and of the third and fourth declensions as well) are subject to Fission, a special mode of Vocabulary Insertion proposed by Noyer 1992.

In the examples discussed to this point, Vocabulary Insertion came to an end as soon as the first Vocabulary Item that satisfied the Subset Condition in (7) was inserted into the morpheme. Noyer noticed that this procedure did not produce the correct results in all cases. In a number of examples from Afro-Asiatic and Australian languages, additional material appeared to be inserted, and this additional material was always identical with the exponent of another, less narrowly restricted Vocabulary Item. Noyer called this special procedure *Fission* and suggested that morphemes subject to Fission were specially marked.

Following Noyer we postulate that in morphemes marked as being subject to Fission the first step in the insertion procedure is identical with that sketched

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above, but this is not the end of the procedure. Simultaneously with insertion of the phonological exponent, a subsidiary morpheme is generated into which are copied the features—if any such remain—that have not been required for (matched in) the first step. This subsidiary morpheme is then itself subject to Vocabulary insertion.

Consider now what happens when a default item is included among the entries competing for insertion into a morpheme subject to Fission. Since, as noted above, a default entry is inserted without matching any features, it is obvious that in such cases an endless sequence of default suffixes will be generated. This clearly is an unacceptable result. To exclude it we posit (following a suggestion by Ben Bruening) that in instances where a default entry is included among the Vocabulary items competing for insertion into a morpheme subject to Fission, the Fission procedure stops after the first iteration. Where no default is included among the items competing for insertion, the Fission process iterates until no usable entry is found in the list. Examples of such unbounded iteration are cited by Noyer 1992 and Harris 1997.

Returning to the Fission in the Latin Genitive Plural Ending, we observe that here all features in the terminal morpheme will be matched in the first step of the insertion process. As a result there will be no features left to copy into the second morpheme. This however will not prevent the insertion of the *s* exponent into the second morpheme, for *s* is the default morpheme, which may be inserted into a terminal morpheme even without matching any of its features. The *s* that is thus inserted is then turned into *r* by the well-known Latin rhotacism rule in (11).

(11) $s \rightarrow r \, / \, V \_\_ V$

Rule (11) is responsible for such alternations as *ru:s ~ ru:r-is* and *corpus ~ corpor-is* as well as for the appearance of *r* in *die:-r-um*.

The Dative/Ablative Plural Ending in *di-e:-bu-s* also includes the *s* suffix. In order to account for the appearance of *-bu-* it is necessary to posit that like the Genitive Plural, this Dative/Ablative Plural Ending is subject to Fission. We must also add the entry in (12) to the Vocabulary entries in (8) that compete for insertion in the Number-Case morpheme.

(12)   *bu* $\Leftrightarrow$ [+oblique, +superior, +plural] / [III, IV, V] + _____

The Dative/Ablative Plural Ending of a third, fourth, or fifth declension noun will then be derived as shown in (13).

(13)   [+oblique, +superior, αstructural, +plural]
    $\downarrow$
    [*bu*; +oblique, +superior] + [αstructural, +plural]
    $\downarrow$
    [*bu*; +oblique, + superior] + [*s*; [αstructural, +plural]

The affix order here is the reverse of that in the Genitive Plural; there is at present no explanation for this fact.

In sum, the Genitive Plural Ending of declensions I, II, and V is subject to Fission, and so is the Dative/Ablative Plural Ending of declensions III, IV, and V. None of the other Number-Case Endings is subject to Fission. This is shown in (14), where we have reproduced the entire set of Number-Case Endings of Latin nouns.

(14)

Singular	I	II	II	III	III	IV	IV	V
	-Neut	-Neut	+Neut	-Neut	+Neut	-Neut	+Neut	-Neut
Nom	-Ø	-s	-m	-s	-Ø	-s	-Ø	-s
Acc	-m	-m	-m	-m	-Ø	-m	-Ø	-m
Abl	-Ø	-Ø	-Ø	-Ø	-Ø	-Ø	-Ø	-Ø
Dat	-i:	-Ø	-Ø	-i:	-i:	-i:	-Ø	-i:
Gen	-i:	-i:	-i:	-s	-s	-s	-s	-i:
Plural								
Nom	-i:	-i:	-a	-s	-a	-s	-a	-s
Acc	-s	-s	-a	-s	-a	-s	-a	-s
Dat/Abl	-s	-s	-s	-bu-s	-bu-s	-bu-s	-bu-s	-bu-s
Gen	-r-um	-r-um	-r-um	-um	-um	-um	-um	-r-um

The Plural [+oblique] Endings have been fully accounted for above. The Plural [-oblique] Endings have three exponents: *i:* in the Nominative Plural of first and second declension nouns, *a* for [+neuter] nouns, and *s* elsewhere. We account for these by adding the entries in (15) to the list competing for insertion in the Ending morpheme.

(15)　　*i:*　⇔　[-obl, +sup, +pl] / [-neut, I, II] + ____　　　Nom Plural (I, II)

　　　　a　⇔　[-obl, +pl] / [+neut] + ____　　　　　Nom/Acc Pl neuter

The Nominative Plural exponent *i:* is identical with that of the Genitive/Dative Singular. Instances of such homophonic Vocabulary entries are rare, indicating that there is a tendency for languages to avoid these. We leave open the question of how such violable constraints are to be implemented formally.

Turning to the Singular, we notice that Genitive has the default exponent *s* in the third and fourth declensions, and *i:* elsewhere. In light of the discussion above, we extend the Impoverishment rule in (10a) so that it also applies in the Genitive Singular of third and fourth declension nouns. Once this is done the rest of Genitive Singular endings are accounted for by (8).

The Dative Singular Endings are either *i:* or Ø (NULL). Given (8), *i:* would be expected everywhere. To account for the NULL exponents we posit the Impoverishment rules in (16), which delete the [+structural] feature. This results in the insertion of the correct NULL exponent.

d V is subject to
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This is shown in
Endings of Latin

IV	V
+Neut	-Neut
-Ø	-s
-Ø	-m
-Ø	-Ø
-Ø	-i:
-s	-i:
-a	-s
-a	-s
-bu-s	-bu-s
-um	-r-um

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(16) $[+\text{structural}] \rightarrow \emptyset \; / \left\{ \begin{array}{c} [\text{IV}, +\text{neuter}] \\ \\ [\text{II}] \end{array} \right\} + [\underline{\quad}, +\text{obl}]$

This brings us to the Singular Endings of [-oblique] Cases. As shown in (14), there are three exponents here: *m*, Ø, and *s*. The Impoverishment rule in (10a) accounts for the insertion of *s*. Since Ø is the Singular default exponent, we posit the Impoverishment rule in (17), which deletes the unmarked feature [+structural].

(17) $[-\text{oblique}] \rightarrow \emptyset \; / \left\{ \begin{array}{l} [\text{III, IV}, +\text{neuter}] + [\underline{\quad}] \\ [\text{I}] + [\underline{\quad}, +\text{superior}] \end{array} \right\}$

By ordering (17) before (10a) we enable (10a) to apply to nouns of all classes. The entire list of Vocabulary Items competing for insertion in the noun Ending morpheme is given in (18).

(18) *um* ⇔ [+obl, +struct, -sup, +pl]   Genitive Plural
      i: ⇔ [+obl, +sup, +pl] / [-neut, I, II] + ____   Nom. Plural I, II
      bu ⇔ [+obl, +sup, +pl] / [III, IV, V] + ____   Dat/Abl Pl III, IV, V
      i: ⇔ [+obl, +struct, -pl]   Genitive/Dative Sg
      a   ⇔ [-obl, +pl] / [+neut] + ____   Nom/Acc Pl neuter
      m   ⇔ [-obl, -pl]   Accusative Singular
      Ø   ⇔ [-pl]   Singular default
      s   ⇔ [   ]   default

To complete the picture it is necessary to posit a number of phonological Readjustment rules. All but one of these apply to the Theme vowel; they include:

(19)

(a) Deletion of the Theme vowel *i* in the Nominative Singular, Genitive Plural, and Nominative/Accusative neuter Plural of third declension nouns (e.g. *urb-s*, but *civ-i-s*; *re:g-um*, but *urb-i-um*; *corpor-a* but *mar-i-a*), and of the Theme vowel *o* in Nominative Singular *ager*, etc.

(b) Deletion of short [-high,-low] Theme vowels before Number-Case endings that begin with a vowel (e.g. *hort-o-i:* → *hort-i:*, but *port-a-i:* → *port-a-e*).

(c) Lengthening and Shortening of the Theme vowel (e.g. *port-a:-r-um*, but *port-a-m*; *di-e:-s*, but *di-e-m*).

(d) Changes in Theme vowel quality (e.g. *hort-o:-s*, but *hort-u-s*; *port-a-m* but *port-i:-s*).

(e) Deletion of word-final *s* after *r* (*ager*, *puer* etc.).

We do not discuss ~~all~~ these changes here as they leave the general picture of the Latin declension unaffected.

[handwritten note: What happens to Theme before -s? It is deleted both in ager-ø-s and urb-i-s, but /s/ is deleted only in II decl]

3. Armenian Nominal Declension

In this section we examine the synchronic structure of the Classical Armenian and Modern Armenian declension systems, and show that the same devices as those employed above for Latin account for the superficially quite different facts of Armenian. They also provide a principled account for the development of the Modern Armenian declension system from that of Classical Armenian.

3.1. Classical Armenian

Classical Armenian employs two types of nominal declensions, classified according to whether or not the nominal stem manifests ablaut; we focus our attention here on the non-ablauting stems.[3] The nominal system distinguishes seven Cases and two numbers, as schematized in (20) (Meillet 1913:46-58, Vaux 1997).

(20) Declension of non-ablauting nominal stems

		I	II	III	IV	V	VI	VII
Sg	N, A	-Ø	-Ø	-Ø	-Ø	-Ø	-Ø	-Ø
	G, D	-i	-i	-i	-o-y	-o-y	-o-ǰ	-Ø
	L	-i	-i	-i	-Ø	-o-ǰ	-o-ǰ	-Ø
	Ab	-ē	-ē	-ē	-o-y	-o-y, -o-ǰ-ē	-o-ǰ-ē	-ē
	I	-a-w	-i-w	-u	-o-v	-a-w	-a-w, -a-m-b	-b
Pl	N	-k^h	-k^h	-k^h	-k^h	-k^h	-ay-k^h	-k^h
	A, L	-s	-s	-s	-s	-s	-ay-s	-s
	G,D,Ab	-a-c^h	-i-c^h	-u-c^h	-o-c^h	-a-c^h	-a-c^h	-a-c^h
	I	-a-w-k^h	-i-w-k^h	-u-k^h	-o-v-k^h	-a-w-k^h	-a-m-b-k^h	-a-w-k^h

The two modern literary dialects, Standard Western Armenian (SWA) and Standard Eastern Armenian (SEA), employ the productive declensions in (21)[4].

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[3] The ablauting declensions are not relevant to the phenomena considered in this paper.
[4] A small number of words use non-productive irregular declensions that are not relevant here.

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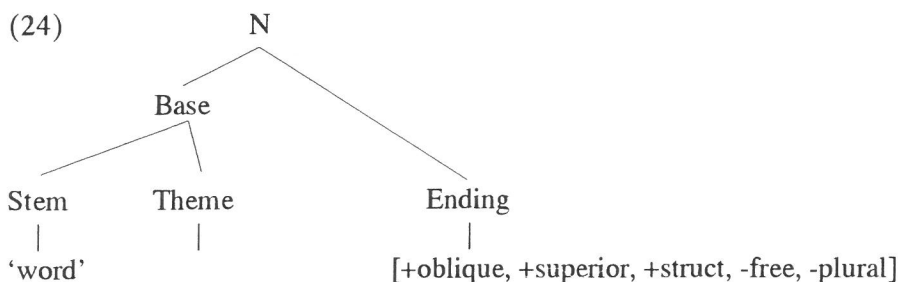classified accor-
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VI	VII
-Ø	-Ø
-o-ǰ	-Ø
-o-ǰ	-Ø
o-ǰ-ē	-ē
·a-w,	-b
ɩ-m-b	
ay-kʰ	-kʰ
·ay-s	-s
-a-cʰ	-a-cʰ
ɩm-b-kʰ	-a-w-kʰ

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ɩat are not relevant

(21)

		SWA	SEA
Sg	N/A	-Ø	-Ø
	G/D	-i	-i
	Ab	-ē	-icʰ
	I	-ov	-ov
	L	-Ø	-um
Pl	N/A	-(n)er-Ø	-(n)er-Ø
	G/D	-(n)er-u	-(n)er-i
	Ab	-(n)er-ē	-(n)er-icʰ
	I	-(n)er-ov	-(n)er-ov
	L	-(n)er-Ø	-(n)er-um

Comparison of (20) and (21) shows that three important changes have occurred in the development of Modern Armenian from Classical Armenian:

(22) i.   Modern Armenian no longer fuses Number and Case.
      ii. Modern Armenian has lost all of the Classical Plural endings.
      iii. Modern Armenian has lost all but one of the Classical declensions.[5]

In the following discussion, we show that the synchronic analysis of the Classical Armenian system, to which we are led by independently motivated principles of Distributed Morphology, provides a straightforward account for the diachronic developments in (22).

Assuming the Case feature specifications set out in (5), we account for the Classical Armenian surface Cases in (20) in a straightforward manner, employing the Vocabulary Items in (23).

(23) s ⇔ [+plural, -free, -superior]   Acc/Loc Plural
       c^h ⇔ [+plural, +free]   Gen/Dat/Abl Plural
       $\bar{e}$ ⇔ [+structural, +free]   Abl Singular
       w ⇔ [+structural, +superior]   Instrumental
       k^h ⇔ [+plural]   Nom/Instr Plural
       $\check{j}$ ⇔ [+oblique] / V, VI + ___ G/D/L/Abl Sg V, VI
       Ø   ⇔ [-oblique]   N/A Sg; L Sg IV, VII; G/D VII
       i ⇔ [   ]   default

The Vocabulary Items in (23) are ordered from most specific to least specific, in accordance with the Subset Principle in (7). With only two minor exceptions to

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[5] There are in fact isolated words that preserve other Classical declensions. What is important for our purposes, though, is that only the declension in (21) is productive in Modern Armenian.

be discussed below, the underspecification of the Vocabulary Items in (23) accounts for the Case syncretisms observed in (20).

Let us consider how the derivation of a typical Case form would work in this scheme. If we wanted to say 'with/by a word', for example, the form of the word *ban* 'word' that would feed into Vocabulary Insertion in the Morphological component would have the structure in (24).
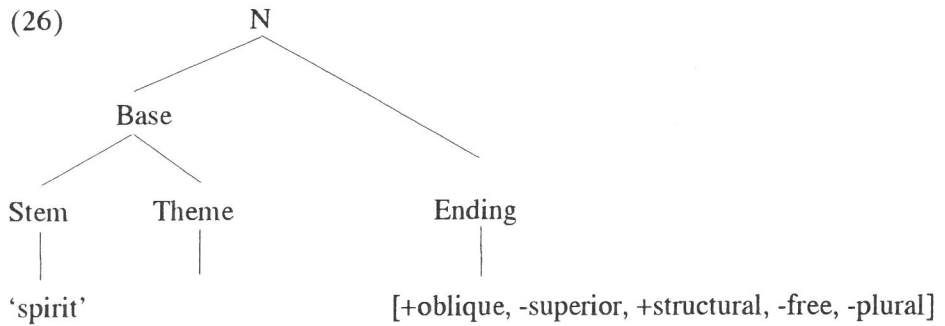
(24)
```
                          N
                        /    \
                   Base       \
                  /    \        \
             Stem      Theme      Ending
              |          |          |
            'word'               [+oblique, +superior, +struct, -free, -plural]
```

The Vocabulary Insertion procedure would then attempt to match this conglomerate with an appropriate Stem, Theme Vowel, and Ending. The Ending (we will not consider the Stem or Theme Vowel here) would be drawn from the entries in (23). The most specific entry, *-s*, is considered first; it is not selected, because it contains the features [-superior] and [+plural], which do not match with the [+superior] and [-plural] features of the noun. Three Vocabulary Items, $-c^h$, *-ē*, and *-w-*, are the next to be considered for insertion, as each possesses two feature specifications. Of these three, $-c^h$ fails because of its [+free] and [+plural] specifications, and *-ē* fails because of its [+free] specification. The *-w-*, however, does not conflict with any of the specifications in (24), and is therefore inserted after the Theme Vowel *-i-*, yielding the correct surface form *ban-i-w*.

In order to account for the instances in (20) where Cases that are normally morphologically distinct have the same phonological exponent, such as the Locative Singular of the fourth declension, which merges with the Nominative/ Accusative Singular, we postulate the set of Impoverishment rules in (25).

(25) Impoverishments:

a.   [+oblique] → [-oblique] / ___ Locative Singular IV, VII; Genitive/Dative VII

b.   [-plural] → Ø / ___ Ablative Singular IV, Genitive/Dative V

The impoverishment rules in (25) remove individual feature specifications from nominal forms meeting their structural descriptions, thereby enabling the insertion of endings other than those we might expect. For example, the Locative Singular of the word *hogi* 'spirit' would enter the Vocabulary Insertion component with the structure in (26).

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(26)

If Vocabulary Insertion were to apply at this point, the suffix -i would be inserted into the Case/Number node, yielding the incorrect form *hogi-o-i, which would surface as *hogwoy.[6] Since Vocabulary Insertion is preceded by Impoverishment, rule (25a) replaces the [+oblique] specification in (26) with [-oblique], yielding the structure in (27).

(27)
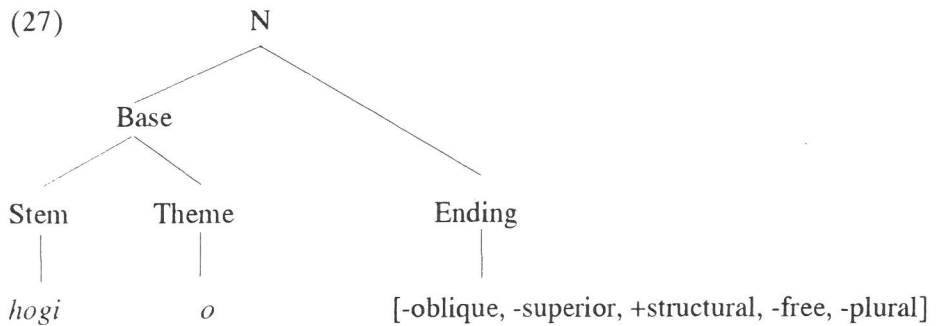
The most specific suffix in (23) that can be inserted into the Case/Number node in (27) is -Ø. Consequently, the form that surfaces in the Locative Singular is hogi.[7]

The account developed thus far requires some further refinement in order to account for the multiple exponents that appear in the Ablative Singular of the fifth and sixth declensions and the Instrumental Plural of all declensions. In the Instrumental Plural, for example, we should expect the ending to be -w-, as in the Instrumental Singular. This, however, is not what happens; instead, the Instrumental Plural consists of the Instrumental Singular -w- plus the general Plural suffix -k^h, which also appears in the verbal system. We deal with cases involving

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[6] Following the application of two phonological rules: one changes i to w before o, and the other changes i to y after a back non-high vowel.
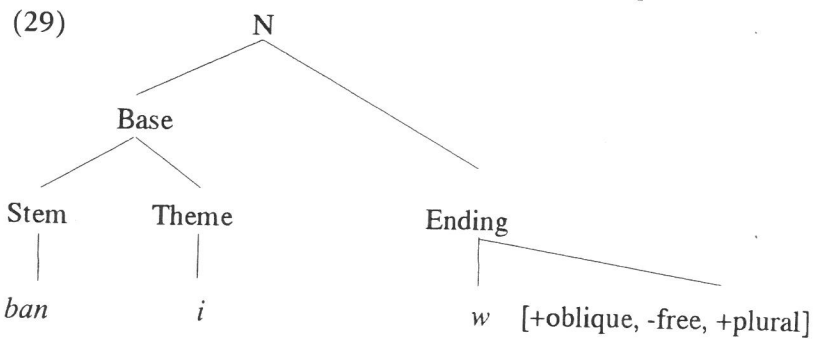
[7] We will not discuss here the rule that deletes the Theme Vowel in this and other forms. We will also not consider the other phonological rules that affect the surface forms of the Cases in (20), such as vowel deletion before another vowel, and the rules that change underlying w into v, b, and Ø.

multiple suffixes such as this by postulating that the Instrumental Plural as well as the Ablative Singular are subject to Fission.

For example, the Instrumental Plural of 'word' enters Vocabulary Insertion with the underlying form given in (28).
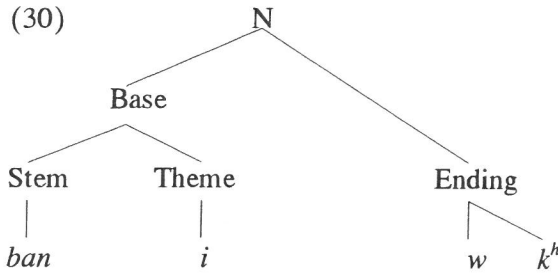
(28)

```
                          N
                 _____/    _____
            Base                      \
          /      \                      \
     Stem        Theme              Ending
       |            |                   |
    'word'                    [+oblique, +superior, +structural, -free, +plural]
```
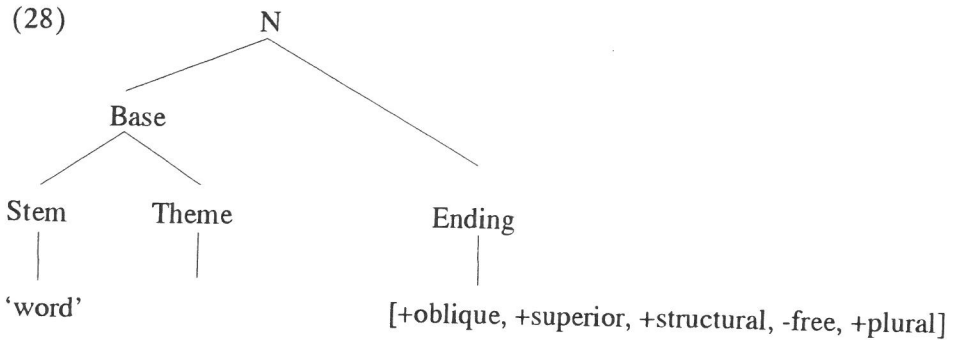
Vocabulary Insertion applies exactly as in the Instrumental Singular Case discussed in (24), producing the structure in (29). Note that the suffix -*w*- matches only the features [+superior, +structural]; the remaining feature bundle [+oblique, -free, +plural] is therefore copied onto a separate suffix.

(29)

```
                          N
                 _____/    _____
            Base                      \
          /      \                      \
     Stem        Theme              Ending
       |            |                 /
     ban            i              w    [+oblique, -free, +plural]
```

The Vocabulary Insertion process again cycles through the Vocabulary Items in (23), attempting to match a suffix to the remaining features in (29). The most specific Item that is eligible for insertion into the rightmost terminal node is -k^h,[8] which checks the [+plural] feature; the [+oblique] and [-free] specifications remain unchecked. The resulting structure is depicted in (30).

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[8] Note that the analysis presented here requires us to assume that [+plural] takes precedence over [+oblique] in Vocabulary Insertion and that contextual information is only relevant in distinguishing between otherwise nondistinguishable items. If this were not the case, it would be theoretically possible for the Instrumental Plural of the fifth declension to be *-*w*-*ǰ* rather than the correct -*w*-k^h.

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Plural of the fifth

(30)

```
                          N
              _____/ \
           Base              \
          /    \              \
       Stem   Theme         Ending
        |       |            / \
       ban      i          w   kʰ
```

One may well ask at this point why we do not assume that the Case and Number nodes fail to fuse in the Instrumental Plural; given this assumption, the Case suffix -w- would occupy the Case node, and the Plural morpheme -k^h- would occupy the Number node, as in (31).

(31)

```
                       N
          _____/|_____
         /         /   |            \
       Stem      Theme  Case        Number
        |          |      |            |
       ban         i      w           kʰ
```
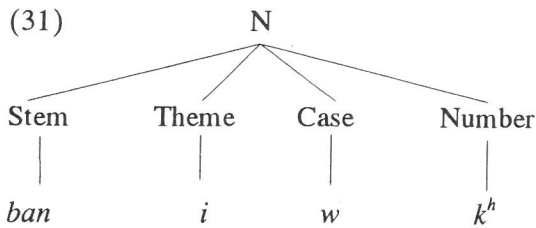
We do not believe this to be the case, for a number of reasons. Chief among these is that when languages fail to fuse Case and Number, the Number morpheme precedes Case, and not vice versa as here. As we shall see below, for example, when the Case and Number nodes fail to fuse in Modern Armenian, Number appears to the *left* of Case, not to the right.

3.2. Modern Armenian

It is clear from the paradigm in (21) that Case and Number are separate morphemes in Modern Armenian. Perhaps due to Turkish influence,[9] Modern Armenian consistently separates the Number morpheme -(n)er- from the Case morpheme. Moreover, the Case morphemes are the same in both the Singular and the Plural. We shall assume therefore that Modern Armenian has lost the morphological rule of Classical Armenian that merges Case and Number into a single morpheme. As a result, the Modern Armenian noun has the structure exemplified in (32) for the Instrumental Plural of *ban*, the same etymon as above, but which in Modern Armenian means 'thing' rather than 'word'.

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[9] Armenian does not begin to separate Case and Number systematically in the Plural until the Middle Armenian period, which postdates the arrival of the Turks in Anatolia.

(32)   N
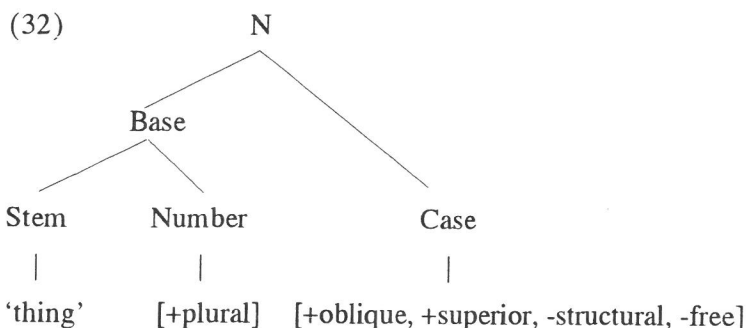   ╱   ╲
                   Base   ╲
                ╱   ╲   ╲
          Stem   Number   Case
            | | |
         'thing'   [+plural]   [+oblique, +superior, -structural, -free]

Proceeding mechanically through the steps outlined thus far, we first insert *ban* in the Stem slot. The items in (33) compete for insertion in the Number slot.

(33) *(n)er*   ⇔   [+plural]
       Ø   ⇔   [   ] (i.e. elsewhere)

In (32), *-ner* is inserted in the [+plural] morpheme.

The presence of the Number node in Modern Armenian guarantees that the feature [+plural] will always be absorbed before Vocabulary Items are considered for insertion into the Case node. This directly produces the highly desirable result that none of the Classical Armenian plural Case suffixes (cf. (23)) can ever appear in Modern Armenian, since each plural Case suffix contains the specification [+plural] and therefore will be too specific to be eligible for insertion into the Case node. In other words, our theory entails that the loss of the Classical Armenian plural endings is a direct result of the loss of the morphological rule merging the Case and Number nodes. Our theory in fact leads us to expect that languages with distinct Number and Case nodes in the morphology will have a single set of Case exponents for both Singular and Plural. Separate exponents are not totally ruled out (cf. Standard Western Armenian Genitive/Dative Plural *-ner-u* vs. Genitive/Dative Singular *-i*), but a cost attaches to each of these, which restricts their appearance to a minimum.

The fact that in our theory all morphemes are represented as feature clusters rather than as otherwise unanalyzable units also allows us to account for the particular endings that Modern Armenian selects for its new single productive declension. All have an antecedent in Classical Armenian, and these exponents share common features in both Classical and Modern Armenian. In fact, the Case endings that survive into the productive Modern Armenian declension are precisely those Classical Armenian endings that are not specified for declension class.

The morphemes competing for insertion in the Case morpheme in Standard Eastern Armenian are given in (34).

(34) ic^h ⇔   [-structural, +free]
     ov ⇔   [-structural, +superior]
     um ⇔   [-structural]
     i ⇔   [+oblique]
     Ø   ⇔   [   ] (i.e. elsewhere)

Of these, *ov* is inserted into the Case morpheme in (32), yielding the surface form *bannerov* in (35).

(35)

```
                    N
              /           \
          Base
        /        \
   Stem      Number    Case
     |          |        |
   ban         ner      ov
```
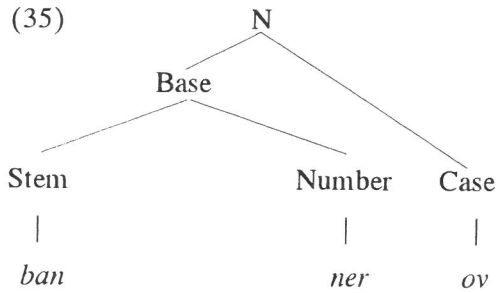
4. Conclusion

We have presented an account of the declension of Latin and Armenian within the framework of Distributed Morphology. Although these languages show almost no resemblance in the phonetic sequences that they employ as exponents of their different Number-Case endings, both languages utilize the same nested structure of constituents for nouns and have similar recourse to the devices of Impoverishment and Fission. Though not apparent in the phonetic forms of the words, these abstract features of words are every bit as real as their phonemes, and like the latter mirror various aspects of the common origin of these two languages.

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