

Paradigmatic and Inflectional Change: Some Theoretical Lessons

Brian D. Joseph
The Ohio State University
[joseph.1@osu.edu]

ABSTRACT: Several paradigm-based morphological changes in Greek and Latin are presented, including a persistent and recurring type of change involving the reshaping of inflectional endings based on other endings, that provide evidence first for the existence of paradigms and then for their internal structure. These considerations lead to an exploration of the relevance of various theoretical constructs and notions (e.g. rules of referral, OO-correspondence relations, constraints on syncretism, and directionality in grammaticalization), and to (hopefully, informed) speculation on what speakers really know about morphology and what they really do with it.

I. Introduction

Paradigms are a given in most recent theories of morphology yet there are proposals still cited in the literature, such as Williams 1981, in which the paradigm as a theoretical construct is an epiphenomenon and not a basic unit of organization. Moreover, questions remain about the internal structure of paradigms and about the nature of relations between and among the forms in a paradigm. Most theorizing about paradigms is done on the basis of synchronic data and synchronically focused issues. Yet there is potentially very telling evidence from language change that bears on the existence of paradigms and on their structure. In what follows, I examine and discuss this evidence, with examples from Greek and Latin (but mostly Greek), with the following goals in mind:

- a. to bring to light a persistent and recurring type of change — the reshaping of inflectional endings based on other endings — that provides evidence regarding paradigm-internal and paradigm-external connections
- b. to explore the utility and/or validity of various theoretical constructs and notions, especially rules of referral (cf. Stump 1993), O(utput)O(utput)-correspondence relations, constraints on syncretism, and directionality in grammaticalization
- c. to speculate on what speakers really know about morphology and what they really do (at least part of the time).

II. What is a Paradigm?

DEFINITION: for me, *paradigm* = an organized set of inflectionally related forms (where I am happy to go with the now-traditional view of inflection as being the syntactically relevant (and/or determined) morphology), with the following embellishments:

- a. the paradigm itself is schematizable as a set of "cells" (with no claims made about the psychological reality of such "cells" per se)
- b. relations between a given cell and some base form (a "stem") are expressed somehow (e.g. via rules that create the forms and fill the cells, via spelling out of feature bundles, via rules of referral (where appropriate), or the like)

- c. relations among cells are expressed somehow (e.g., via redundancy rules over the bundles of features that define each cell, via rules of referral (making specific reference to shape of one cell in specifying shape of another cell, e.g. in Latin, [+Dative / +Plural] = [+Ablative / +Plural], via OO-correspondence statements, or the like)
- d. the rule/relationship types involved in and involving paradigms are *not* the same as those creating stems (i.e., are distinct from *derivational* processes), though conceivably some of the same sorts of constructs could be employed (e.g. spelling out of features like [+noun, +abstract, +dimension] in the creation of nouns like *wid-th*, just like the spelling out of features such as [+present, +third person, +singular] in the creation of verbs like *run-s*)

III. Analogical Change as Evidence for Paradigms

OBSERVATION:

A common phenomenon in analogical change is for forms within a paradigm to be affected by the change but for extra-paradigmatic forms to be unaffected (this is equivalent, generally, to saying that *inflectionally* related forms are affected but *derivationally* related forms are not). Probably this is to be related to *productivity* (with inflection being the most productive type of morphology and derivation of different degrees of productivity behaving differently)

EXAMPLES (a/b well-known, c not so well-known):

- a. Leveling in paradigm of Latin *s*-stems, where NOM *honos* / GEN *honoris* ‘honor’ => *honor* / *honoris*) but (unproductive) derivationally related *hones-tus* ‘honest’ is left untouched; so also with *arbos* / *arboris* ‘tree’=> *arbor* / *arboris* (with derivative *arbustum* ‘grove’ left untouched) and *robos* / *roboris* ‘oak’ => *robor* / *roboris* (with derivative *robustus* ‘strong’ left untouched)
- b. Leveling in paradigm of Greek **m*-stems, where NOM *hen* / GEN *hem-os** ‘one/NTR’, *khthōn* / *khthom-os** ‘earth’ => *hen* / *henos*, *khthōn* / *khthonos*, but (unproductive) derivatives *m-ia* ‘one/FEM’ and *khthamalos* ‘earthly’ are left untouched (note productive derivative *khthonios* ‘earthly’ with “levelled” *-n-*, but this is likely a re-creation, a new derivative based on new stem with productive suffix)
- c. The Ancient Greek adjective for ‘fourth’ shifted accent shift masculine and feminine NOM.SG forms, i.e. *tétartos* (M) vs. *tetártē* (F), caused by the fact that the F form ended in a long vowel, and that in words with a long vowel in the final syllable, the accent could fall no further back the penultimate syllable. The F form *tetártē* occurred with the definite article *he*: to mean ‘Wednesday’ (literally “the fourth” with the F noun *hēméra* ‘day’ understood). Between Ancient Greek and Modern Greek, vowel length ceased to be distinctive and the accent placement in the F adjective was changed to the initial syllable, on analogy with the masculine, giving M *tétartos* vs. F *tétarti* (with *i* from earlier *ē*). **BUT**, the Modern Greek word for ‘Wednesday’ is *i tetárti*, (where *i* = ‘the’), a direct continuation of earlier *hē tetártē* with the Ancient Greek accent placement intact and unaffected by the analogical levelling in the adjectival M/F forms.

IV. Paradigm-internal and Cross-Paradigmatic "Reshuffling" of Inflectional Morphemes

OBSERVATION

An apparently common change involving inflection is for endings (e.g. case endings in nouns, or person, number, and/or tense (etc.) endings in verbs, to affect one another, either paradigm-internally (e.g. different persons within the same tense, thus involving different cells within the same paradigm), or across paradigms (e.g. same person across different tenses, thus involving the same cell but in different paradigms).

EXAMPLES (from Greek only, and mostly modern Greek and mostly nonactive (i.e., middle/passive or medio-passive) forms (cf. Newton 1972 on the instability and variability of these endings, and Minas 1987 for a comprehensive list of dialectal forms), but other instances can be readily identified):

Paradigm-internal:

- a. (AGrk) 2SG/3SG nonactive voice present endings taking on **-a-** vocalism of 1SG ending: **-sai** / **-tai** from earlier ***-soi** / **-toi** based on 1SG **-mai** (note: **-o-** seems original based on 2SG/3SG Past **-so** / **-to** (and note dialectal 3SG **-toi**))
- b. (MGrk) 1PL/2PL nonactive past endings: 1PL **-mastan** / 2PL **-sastan** from earlier **-maste** / **-saste** (Ancient **-me(s)tha** / **-esthe**), based on end part of 3PL **-ondan** (as in (h) below), thus indirectly reflecting 3PL *active* **-an**
- c. further innovative (MGrk) dialectal 3PL nonactive past ending **-ondustan** from earlier **-ondusan** based on 1PL **-mastan** and 2PL **-sastan** (as in (b), cf. Joseph 2004a, 2006b)
- d. (MGrk) 2SG nonactive past imperfective ending: **-sun** from earlier **-so**, based on 1SG nonactive **-mun**
- e. further innovative (MGrk) 2SG nonactive past imperfective ending: **-suna** from **-sun**, with **-a** added from 1SG nonactive, thus reflecting 1SG *active* form too indirectly (cf. (j) below)
- f. (MGrk) 3PL past ending **-ane** from earlier **-an**, presumably due (at least in part) to 1PL **-a-me** and 2PL **-a-te**
- g. (MGrk) 2SG past active ending **-es** selected out of earlier **-as/-es** variation, presumably due to 3SG active **-e** (Joseph 1980)

Cross-paradigm:

- h. (MGrk) 3PL nonactive past ending: **-ondan** from earlier **-onto**, based on 3PL *active* **-an**
- i. (MGrk) dialectal 3PL nonactive past ending **-ondusan** from earlier **-onto** based on 3PL *active* **-san**
- j. (MGrk) 1SG nonactive past imperfective ending: **-muna** from **-mun**, with **-a** added from 1SG *active*
- k. (MGrk) 3SG nonactive past imperfective ending: **-tan(e)** from **-ton**, with **-a-** vocalism and **-e** (taken over from active, especially active plural (as in (f)))

V. Another Type of Cross-Paradigm Influence: Pronoun-Verb Ending Interaction

OBSERVATION

Another not infrequent change in inflectional endings, especially for verbal endings, is influence from **pronominal** forms, with the endings reshaped/remade based on free or bound pronouns (NB: some of these may be truly paradigmatic but a syntagmatic basis has been suggested too (Dunkel 2002), as in (d)).

EXAMPLES

- a. 1PL ending **-ne** occurs in some Macedonian dialects, e.g. in Vrbnik (Kramer 2002), in Gorno Kalenik (Hill 1990), and Radožda-Vevčani (Hendriks 1976), and in some Bulgarian dialects (*Bŭlgarski Dialekten Atlas* II.189, largely areas where there was migration from SW Macedonia (Friedman, p.c.) but not exclusively so), especially in 'to be' (**sne**) but more widespread in some dialects (cf. aorists in **-f-ne** in Radožda-Vevčani (Mac.) and *BDA* II.186; III.202 lists both **berene** and **beren** 'we carry' -- elsewhere in Mac. and Bulg., 1PL forms with **-m-** occur, e.g. **sme**, **berem/bereme/beremo**, etc. (*BDA* II.186, III.202), and so also more generally in South Slavic and the rest of Slavic (and elsewhere in Indo-European). Thus 1PL **-n-** is innovative — not a sound change since there is no regular phonological context for **m > n** (cf. **rasmea** 'smile' in Gorno Kalenik and Bulg. dialects with **-ne** after a vowel, e.g. **zovène** 'we call'), so the best solution is morphological, specifically analogy with 1PL pronoun (begins with **n-** in most dialects, though some have **m-**), with 1PL pronominal form with initial **n-** impinging on verbal 1PL ending with initial **-m-**)
- b. New Mexican Spanish **-nos** for **-mos** in 1PL verb forms (Janda 1995), e.g. **hablabanos** 'we were speaking' occurs, as opposed to **hablabamos** elsewhere; Janda suggests the innovative form of the ending is based on the initial consonantism of the 1PL pronoun **nos(otros)**.
- c. Early Slavic of the 1PL verbal ending **-my** for expected **-mb**, e.g. *pobyxomy* (vs. expected *pobyxomb*) presumably has innovative vocalism **-y** based on the vocalism of the 1PL nominative pronominal form *my* (so *Gramatika na Starobŭlgarskija Ezik*, p. 296).
- d. Dunkel 2002: 100-101: early Slavic first person dual ending **-vě** for expected **-va**, where innovative vocalism results from a carry-over ("perseveration" for D) of a collocation of pronoun with inflected verb, e.g. **vě jesva* 'we two are' > **vě jesvě**.
- e. Greek 3PL nonactive **-ondus(t)an** from earlier **-ondan** (cf. §IVb/c), based on weak 3PL possessive/objective pronoun **tus** and analysis of 1PL/2PL **-mastan/-sastan** as being based on weak 1/2PL possessive/objective pronouns **mas/sas** (Ruge 1984, Joseph 2004a)
- f. Thavoris 1977: Northern Greek nonactive 2PL imperative, e.g. **kimísas** 'sleep(PL)!', an innovative replacement for expected reflex of earlier **kimiθíte**, is based on a reinterpretation of 2SG **kimís** 'sleep(SG)!' as ending in the 2SG weak genitive pronoun [-s], so that the plural would take the 2PL weak genitive pronoun **sas**, thus **kimísas**; presumably such a reanalysis would be possible only if a linkage between pronouns and personal endings were well-motivated independently.

VI. Theoretical Hay to be Reaped

- a. These developments show that cells in paradigms are connected to one another somehow; what is the appropriate formal mechanism for expressing such connections?
- i. **Rules of Referral** *might* be useful here, but they are generally for forms that are **exactly identical** (i.e., paradigmatic cell syncretism), whereas the endings in §V end up only **partially** similar. Still, that could be remedied easily and some current views of rules of referral allow for partial overlap in form. But, more to the point: rules of referral are useful **after** the fact, for expressing resulting syncretisms, but could they be predictive of what will happen, of which forms will come to be similar? Probably not (note that the predictions of Williams 1981 about syncretism in the Latin noun paradigm based on his division of Latin's four (*sic*) cases into two classes met with little success, as argued by Joseph & Wallace 1984).
- ii. If **OO-correspondence relations** are the formal mechanism for expressing linkages, they must be of a different sort from at least some conceptions of them; Kager 1999: 215, for instance, claims that:

A 'base' in an OO-correspondence relation must be

- (a) 'compositionally related to the affixed word in a morphological and a semantic sense'
- (b) 'a free form, i.e. a word'

whereas the influences in the examples in IV are from affix to affix. Thus, a broader view of what elements can figure in such correspondence relations is needed if this mechanism is to be employed.

- iii. What I would say is needed therefore is rather what Janda & Joseph (1992c, but see also 1986, 1989, 1992a, and Janda 1982, Joseph & Janda 1988), in discussing the possibility of "hyperanalyzing" the Greek nonactive endings into numerous constituent morphemes (so that 1PL **-masthan** would be // **-m-a-st-a-n** //, morphemically) have called **meta-redundancy rules** or **meta-templates** (and the **constellations** they define — other examples discussed in J & J 19** include Sanskrit reduplication, Greek negation, and German umlaut):

"[If] certain (parts of) words share significant, non-accidental commonalities of form [it] does not require us to treat these similarities as distinct morphemes associated with individual word-formation rules ... [Rather] hyperanalytic pseudo-agglutinativity (accompanied by massive violations of the E[lsewhere]C[ondition]) is in fact unnecessary, because there exists a non-morphemic mechanism for expressing systematic partial similarities of form shared by words (and morphological rules) — namely, the "meta-redundancy-rules" or "meta-templates" of Janda & Joseph 1986, 1989, 1992a, and 1992b-MS (cf. also Janda 1982 and Joseph & Janda 1988). For example, such meta-statments are motivated for Sanskrit [reduplication] by the existence of numerous reduplication-rules whose near-identity can hardly be accidental (e.g., they all copy only the *t* of an *st...*-root vs. only the *s* of an *sn...*-root) but which

also show significant differences (e.g., in prefixal vs. infixal status, overall template-shape, and vocalic or consonantal prespecification) and so cannot be collapsed into a single rule. Positing a meta-redundancy rule, though, permits us to unite the myriad similar reduplication-rules of Sanskrit as a single "rule constellation" (see Janda & Joseph 1986, 1989)... This formalism "parses", as it were, the identical portions of all [relevant] morphological rules ... In this sense, a meta-redundancy-rule is merely a generalization stating that every occurrence of the particular formal configuration which it expresses (possibly including features of morphosyntax and semantics, as well as phonology) is to be evaluated as an instance of the same morphological element. However, since uncollapsible similarities of this sort can also be found between a morphological rule and a lexical item (cf. Frank 1991), as well as between two morphological templates (cf. Janda & Joseph 1992a), it is perhaps more revealing to give them the alternative (and shorter) label "meta-template(s)".

b. What cells in a paradigm can be connected with what other cells? Are there constraints on these linkages?

i. note that the examples in §IV show linkages of both:

--same-person but cross-number (e.g. 1SG <--> 1PL)

--same-number but cross-person (e.g. 1PL <--> 2PL)

ii. Burzio 2005 posits "morphological neighborhoods" as a basis for syncretism, and Tantalou & Burzio 2005: §2.2 say explicitly that "Cross-linguistically, syncretism obeys two main generalizations. One is that it tends to affect neighboring cells"

iii. Leaving aside the question of what "neighboring" means (isn't the schematic layout of a paradigm arbitrary?), note the following further facts about the range of linkages found:

α'. Romanian present tense 1SG <-- > 3PL (in 2nd, 3rd, and (most of) 4th conjugations, e.g. **eu/ei vad** 'I/they see', **eu/ei merg** 'I/they go', **eu/ei zidesc** 'I/they build', and some irregular verbs, especially **sînt** 'I am/'they are')

β'. Romanian stem extensions occur in SG + 3PL (1/2/3SG/3PL **zid-esc-Ø** / **zid-eșt-i** / **zid-eșt-e** / **zid-esc-Ø** vs. 1/2PL **zid-im** / **zid-iți** 'build')

γ'. German 2/3SG vowel changes in present (**ich sehe** / **wir sehen** but **du siehst** / **er sieht**)

δ'. Sanskrit 1SG.PERFECT <-- > 3SG.PERFECT, both in **-au** for roots in **-ā** (e.g. **jajñau** 'I-have/he-has known' from √jñā-) and both in **-a** for all other verbs. But, the **-a** endings were different originally (1SG *-H₂e vs. 3SG *-e) and the **-au**, whatever its origin, is most likely not original to both persons (though see below), yet in all non-**a:** verbs in Vedic (= earliest layer of Sanskrit) and for all verbs in later Sanskrit, 1SG = 3SG in perfect. The Vedic situation with **-a:** verbs is complicated by there being no attestations of 1SG forms, and by there being in 3SG one example with simply **-a:** (**paprā** 'he has filled' RV1.69.1b), versus 30+ with **-au**; whatever the 1SG was at that time, unless it was **-au** for all verbs but √prā-, there would not have been a fully operative 1SG/3SG linkage, due to incomplete spread of the **-u**, if original to 1SG (hard to tell; see Jasanoff 1988 for

- such a view, recanted in Jasanoff 2003: §40 where 3SG is suggested as original locus) or to some process altering a 3SG **paprau*** (at which point 1SG/3SG linkage is OK underlyingly or on surface too if the process were purely phonetic in nature) — see Dawson 2005 for discussion of possible explanations of **paprā**. Jasanoff 2003: 61 thinks that there is a phonological solution for both 1SG and 3SG **-au** outcomes if one assumes a laryngeal cluster simplification, at which point the convergence would have been adventitious at first but possibly developing into a significant one later on. Still, there is more obscurity than light in this case.
- iv. Thus, maybe there are **NO** constraints on syncretism and on the kinds of linkages that can lead to changes in inflectional endings. This would make sense if at least **some** syncretisms are **adventitious** (e.g. the result of sound changes that, in keeping with Neogrammarian principles, would **not** differentiate between affected "targets" based on any grammatical properties they might have or express.
- c. Based on (iv), it is fair to ask if all syncretisms really are significant. Diachronic evidence can be helpful here in distinguishing **adventitious convergence** from truly **significant linkage** (cf. Baerman 2004), as shared diachronic developments can show the significant type of linkage, e.g.:
- i. Greek 1SG thematic past **-on** <--> 3PL **-on** is adventitious (1SG < *-o-m vs. 3PL < *-o-nt, both by regular sound changes) and this is confirmed by the fact that an innovation affecting one does not automatically carry over to the other; e.g. 1SG replaced eventually by **-a**, but 3PL ends up as **-an** (also **-ane**) — thus this 1SG/3SG linkage in Greek is different in kind from that same linkage found in Romanian.
 - ii. To see that the Romanian situation is not a mirage (not merely adventitious) note how it allowed for innovative 1SG of 'be' to arise, based on 3PL (**sînt**, presumably replacing in 1SG a form more directly from Latin *sum*, and still preserved perhaps in fast-speech (enclitic) 1SG form **-s**)
 - iii. Sanskrit 1SG/3SG linkage in perfect (both as **-a**) is fortuitous, but if that linkage is the model for the spread of the **-au** ending with **-ā** roots (whatever the origin -- see (δ') above), then the complete spread by Classical Sanskrit would suggest the linkage ended up as synchronically real for (at least some) speakers.
- d. Directionality in grammaticalization (Joseph 2004b: 58, 2005, 2006a): changes in §IV can be termed "lateral shifts" in that they do not involve movement "up" or "down" the "grammaticalization cline" (of word-to-affix); the endings are equally grammatical before the change and after the change. While that might lead one to say that such changes are not grammaticalizations, the trend among grammaticalizationists has been to treat an ever-increasing range of changes as grammaticalizations, and in any case, these are changes in grammatical forms and thus *ought* to be of relevance to grammaticalization studies. In particular, they bear on the question of **unidirectionality** in grammaticalization.
- i. there are really two possibilities for what **unidirectionality** might mean:
 - α'. There is **NO** movement from more grammatical to less grammatical

- β'. There is ONLY movement from less grammatical to more grammatical
- ii. assessment of (i) with respect to the notion of *lateral shifts* (from §II above):
- α'. (i.α') is weaker, in that it allows *lateral shifts* (since in a lateral shift, it is not that an element is moving from more to less grammatical)
- β'. by contrast, (i.β') rules out such *lateral shifts* (since by (i.β') the only type of change is from less to more grammatical and a lateral shift is not such a change)
- iii. thus, lateral shift changes, if instances of grammaticalization, show that the weaker form of unidirectionality is the most that can be maintained (and see Janda 2001, Joseph 2001, among others, for reasons for giving up unidirectionality altogether).
- e. What do speakers really do with these endings to get the results we see? Are they perhaps just "taking guesses" at what the forms in question are, especially given that innovative endings presumably are created on the fly in real time without speakers having access, so to speak, to the full range of possibly related forms to "check" as to the proper composition of the endings?
- i. thus, innovative **-t-** in **-ondustan** may just as well be the result of an imperfect recollection by the innovating speaker of what the ending is, of course with some influence from 1/2PL with **-(s)t-** but not necessarily — at least at the moment at which the innovative form first emerges — representing a marking for PL as opposed to just taking up space in the ending without being meaningful
- ii. in this regard, cf. Greek 3PL variant ending **-osande**, where nonactive **-(n)de** is added onto what is ostensibly 3PL.ACTIVE **-osan** (vs. **-ondusan**, which has nonactive **-ond(u)-** inside of 3PL active **-(s)an**). It is as if speakers just are taking guesses as to how to put the pieces together, and perhaps it doesn't really matter as long as the forms eventually has all the pieces regardless of the order.
- f. More detail on **-osande** and its import, in particular, about nonactive (mediopassive) **-(n)de** and 3PL.ACTIVE **-osan**
- i. **-nd-** of **-(n)de** derives from Ancient Greek **-nt-**, found in 3PL mediopassive (nonactive) ending **-ontai** (present) and **-onto** (past). In the Ancient Greek diasystem of verbal endings, the **-nt-** of **-ontai/-onto** was found in 3PL endings more generally, in both active and nonactive paradigms (note Doric present active 3PL ending is **-onti** (vs. Attic-Ionic **-ousi**, a development from *-onti by regular sound change)); the relationship of **-nt-** to 3PL alone was weakened by the development in past active, where *-ont (no **-i**, which was a presential marker) became **-on** (by regular sound change), moving it away from the ending **-onti**
- ii. On the way to Modern Greek, **-nt-**, in its more modern form **-nd-**, changed in function so that it was no longer a carrier of 3PL marking; rather, based on the fact that the present active 3PL ending came to be **-un** (though there was fluctuation in Medieval Greek between **-un** and **-usi**), and that the Ancient Doric **-onti** did not survive into the Koine and thus not into Modern Greek, and with the added consideration that the past active 3PL was **-n** in any case (see above), the value of **-nd-** could no longer be said to be 3PL.

- iii. Rather, the only category of ending where **-nd-** consistently occurs, at one stage of post-Classical/pre-Modern Greek, came to be the 3PL *nonactive* endings, with **-onde** (from Ancient **-ontai**) in the present and **-ondo** (from **-onto**) in the past.
 - iv. Note too that the **-nto** of **-onto** finds support elsewhere in the Greek diasystem of verbal endings in the nonactive voice; cf. 3SG **-to**, where the connection with present 3SG ending **-toi** (Arcado-Cypriot and Mycenaean, with the presential marker *-i*), indicates that **-to** is properly **-to-Ø**, with **-to-** marking voice and the absence of *-i* marking tense. From the diachronic perspective too, nonactive voice endings in various other Indo-European languages with **-o-**vocalism (e.g. the 3SG passive **-ada** of Gothic and similarly **-ar** of Old Irish) point to an original association, in the endings at least, between **-o-** and nonactive voice, especially for the third person (see Jasanoff 2003: 45-55 for discussion of these and other nonactive endings; he concludes that endings with **-o-* must be reconstructed for Proto-Indo-European in 3rd person)
 - v. With regard to **-(s)an**, the persistent **-a-** throughout much of the set of active past endings, in Ancient Greek but even more strongly so in Modern Greek, where the sole 1SG ending is **-a** (vs. Ancient Greek **-on** alternating with **-a** depending on different classes of verb), means that **-san** is more closely tied to tense marking per se.
 - vi. Thus, **-osan/nde** does in fact involve TENSE – VOICE in that order, and therefore it shows the reverse order of **-ondu-san** (and note there are other endings in Greek with VOICE – TENSE in that order, e.g. 1SG **-mun-a** (noted above in §IVd/j)).
- g. In Latin, the future imperative 3PL ending is **-untō** with person/number marker **-unt** inside of (i.e., to the left of) the mood marker **-tō**. However, that order does not conform to the order of person/number/mood markers found in other forms of the paradigm, e.g. 2PL **-tōte**, where **-te** marks person/number; relevant here too is the fact that the 2SG future imperative ending is **-tō**, that is to say, **-tō-Ø**, with mood marker **-tō-** and that **-te** occurs in other 2PL imperatives (e.g. present imperative **amāte** ‘love!’). Thus **-tōte** rather transparently involves marking for MOOD inside of marking for TENSE. Moreover, other mood markings occur inside of the 3PL person/number marker, as in the present subjunctive **ament** ‘that they love’ where **-e-** is the subjunctive marker and **-nt** marks 3PL. Thus 3PL **-untō** stands out in the paradigm as having TENSE inside of MOOD, so that the order is the opposite in this 3PL form from what is found elsewhere. Thus again, it seems that the order is not fixed in general (though it is for particular forms) and that speakers in putting together a 3PL form were faced with what to do with the **-t-** of the future imperative **-tō** and the **-t-** of the 3PL **-unt**; a possible solution would involve "sharing" of **-t-**, i.e. **-un-T-ō**, where the **-T-** is meant to represent an “ambimorphemic” element shared between the tense marker and the mood marker, and would thus yield the attested **-untō**. That “sharing” solution is possible only if the morphemes are ordered with TENSE before MOOD for in the opposite order **-tō-unt** there is no way to have a single **-t-** serve double duty. The sharing solution thus provides a rationale for stringing the morphemes together in some order, even if the order is anomalous relative to other forms in the paradigm or in related paradigms. In this solution, therefore, speakers make a reasonable guess as to how to make the morphemes "work" in the form.
- h. An interpretation of **-ondusan/-osande** and **-untō**: speakers employ a *Gestalt* strategy of interpretation and production when dealing with the creation of new material via

concatenation. This strategy can be seen in two other phenomena involving ordering of elements:

- i. within Indo-European, demonstrative “pieces” are concatenated to form larger demonstrative words; e.g. Greek **touto** ‘this’ (NEUTER) = the definite element (later to be the article) **to** with a deictic element **u** (as in Sanskrit **asa-u** ‘this’) and the **to** repeated, and Latin **hic** ‘this’ is composed of a deictic **hi-** and a deictic **-c**, from *ke-. *ke- occurs in Greek **keinos** ‘that’ (= *ke-eno-); this same combination, but in the reverse order, is found in Umbrian **enuk** ‘that way’, from *eno-ke. Thus the specific order of these deictic elements is less important than their simply being present and concatenated.
- ii. note the “jumbled word effect” (see especially Grainger & Whitney 2004) by which fluent reading is possible with passages in which the letters in words are jumbled up, as in the title of the Grainger & Whitney article, “Does the huamn mnid raed wrods as a wlohe?”, i.e. “Does the human mind read words as a whole?”. Whatever perceptual principle allows fluent reader to ignore the internal order of letters in a word as long as the ends are intact, and thus to read *huamn* as *human* (etc.) without any difficulty, can underlie the ability to produce and/or understand anomalously ordered morpheme sequences such as Greek **-osande** and Latin **-untō**.

VII. A Concluding Thought

Diachrony is relevant to our understanding of synchronic systems and understandably so if one takes a "dynamic" view of synchrony and diachrony whereby diachrony is not a separate "place" that resides somewhere distinct from synchrony but rather is simply the progression through successive synchronic states. In that sense, there is **only** synchrony for speakers, and diachrony is really just for linguists!

REFERENCES

- Baerman, Matthew. 2004. Directionality and (un)natural classes in syncretism. *Language* 80. 807-827.
- Bùlgarski Dialekten Atlas*. 1964ff. Sofia : Bùlgarska akademiia na naukite.
- Burzio, Luigi. 2005. Sources of Paradigm Uniformity. In Laura J. Downing, T. A. Hall, Renate Raffelsiefen, eds. *Paradigms in Phonological Theory*. Oxford: Oxford University Press, 65-106.
- Dawson, Hope C. 2005. *Morphological variation and change in the Rigveda: The case of -au vs. -ā*. Columbus: The Ohio State University Ph.D. Dissertation.
- Dunkel, George. 2002. *eg'o: and *ag'o:, eg'H-o:h₁ and *h₂ég'-oh₁: Perseveration and the primary thematic ending *-ó. In H. Hetterich (ed.) *Indogermanische Syntax. Fragen und Perspektiven*, 89-103. Wiesbaden: Reichert.
- Frank, Linda. 1991. Shared Elements in Modern Hebrew Free Pronouns and Past Tense. Paper presented at the 1990-1991 LSA Annual Meeting; Chicago, IL (January 3-6, 1991).
- Grainger, Jonathan and Carol Whitney. 2004. Does the huamn mnid raed wrods as a wlohe? *TRENDS in Cognitive Sciences* 8.2.58-59.
- Gramatika na Starobùlgarskija Ezik*. 1991. Sofia: Bùlgarska Akademija na Naukite.
- Hendriks, Peter. *The Radozda-Vevcani Dialect of Macedonian*. Lisse: The Peter de Ridder Press.
- Hill, Peter. 1990. *The Dialect of Gorno Kalenik*. Columbus: Slavica Publishers.
- Janda, Richard D. 1982. "Of Formal Identity & Rule-(Un-)Collapsibility: On Lost & Found Generalizations in Morphology". In D. Flickinger et al. (eds.), *Proceedings of the 1st West Coast Conference on Formal Linguistics*. Stanford: Linguistics Dept., Stanford U., pp. 179-197.
- Janda, Richard D. 1995. From agreement affix to subject 'clitic'-and bound root: *mos* > *-nos* vs. (*-nos(-)*) and *nos-otros* in New Mexican and other regional Spanish dialects. *CLS* 31.1.118-39.
- Janda, Richard D. & Brian D. Joseph. 1986. "One Rule or Many? Sanskrit Reduplication as Fragmented Affixation". In S. Choi et al. (eds.), *Proceedings of the 2nd ESCOL; SUNY Buffalo; October 3-5, 1985*. Columbus, OH: OSU, pp. 103-119. (Reprinted in *OSU Working Papers in Linguistics (Studies on Language Change*, ed. by B. Joseph, 1986) 34.84-107.)
- Janda, Richard D. & Brian D. Joseph. 1989. In Further Defense of a Non-Phonological Account for Sanskrit Root-Initial Aspiration Alternations. In J. Powers & K. de Jong (eds.), *Proceedings of the 5th ESCOL, U. of PA; Sept. 30 - Oct. 2, 1988*. Columbus: OSU, pp. 246-60.
- Janda, Richard D. & Brian D. Joseph. 1992a. Meta-Templates & the Underlying (Dis-)Unity of Sanskrit Reduplication. In G. Westphal et al. (eds.), *Proceedings of the 8th ESCOL, U. of Maryland at Baltimore; October 11-13, 1991*. Columbus, OH: OSU, pp. 160-173.
- Janda, Richard D. & Brian D. Joseph. 1992b-MS. On Constellations in Morphology: General Evidence & the Special Case of Modern Greek *mi(n)(-)*. Unpublished paper, U. of Chicago & OSU.

- Janda, Richard D. & Brian D. Joseph. 1992c. Pseudo-Agglutinativity in Modern Greek Verb Inflection and "Elsewhere". In *Papers from the 28th Annual Meeting of the Chicago Linguistic Society*. Volume 1, pp. 251-266. Chicago: Chicago Linguistic Society.
- Janda, Richard D. & Brian D. Joseph. 1999. The Modern Greek Negator *mi(n)(-)* as a Morphological Constellation. In A. Mozer (ed.) *Greek Linguistics: Proceedings of the 3rd International Conference on Greek Linguistics*. Athens: Elinika Gramata (1999), pp. 341-351.
- Jasanoff, Jay. 1988. "PIE *g'né- 'recognize, know'". In A. Bammesberger (ed.) *Die Laryngaltheorie und die Rekonstruktion des indogermanischen Laut- und Formensystems*. Heidelberg: Winter.
- Jasanoff, Jay. 2003. *Hittite and the Indo-European Verb*. Oxford: Oxford University Press.
- Joseph, Brian D. 1980. "Watkins' Law & the Modern Greek Preterite". *Die Sprache* 26:179-184.
- Joseph, Brian D. & Richard D. Janda. 1988. The How & Why of Diachronic Morphologization & Demorphologization. In M. Hammond & M. Noonan (eds.), *Theoretical Morphology: Approaches in Modern Linguistics*. San Diego: Academic Press, pp. 193-210.
- Joseph, Brian D. & Rex E. Wallace. 1984. Latin Morphology – Another Look *Linguistic Inquiry* 15.319-328.
- Joseph, Brian D. 2004a. Typological and Areal Perspectives on the Reshaping of a Macedonian Verbal Ending. *Macedonian Studies. Papers from the 5th International Macedonian-North American Conference on Macedonian Studies 1-4 May 2003 at The Ohio State University (Ohio State Working Papers in Slavic Studies 4)*, ed. by B. Joseph & M.A. Johnson, pp. 143-151. Columbus: The Ohio State University Department of Slavic and East European Languages and Literatures.
- Joseph, Brian D. 2004b. Rescuing Traditional (Historical) Linguistics from Grammaticalization "Theory". In *Up and Down the Cline - The Nature of Grammaticalization*, ed. by O. Fischer, M. Norde, & H. Perridon. Amsterdam: John Benjamins Publishing Co., pp. 45-71.
- Joseph, Brian D. 2005. Greek Verb Endings: "Lateral Shifts" and Grammaticalization. Paper presented at New Reflections on Grammaticalization (NRG 3), Santiago de Compostela (July 17, 2005).
- Joseph, Brian D. 2006a. How accommodating of change is grammaticalization? The case of "lateral shifts". *Logos and Language. Journal of General Linguistics and Language Theory* 6.2.1-9.
- Joseph, Brian D. 2006b. On Connections Between Personal Pronouns and Verbal Endings in the Balkans. To appear in a to-be-named Festschrift.
- Kager, René. 1999. Surface opacity of metrical structure in Optimality Theory. In Ben Hermans & Marc van Oostendorp (eds.) *The derivational residue in phonological Optimality Theory*, 207-245. Amsterdam: John Benjamins.
- Kramer, Christina. 2002. *Minority Language Rights in Primary Education: A Century of Change in the Balkans*. (Kenneth E. Naylor Memorial Lecture (To appear in Naylor Lecture Series, Beech Stave Press (2008)))
- Minas, Konstantinos. 1987. I kataliksís tis oristikís ton monolektíkon rimatikón tipón tis mesopathitikís fonís. *Dodoni. Epistimoniki epetirida tu tmímatos filologías tis filosofikís sxolís tu panepistimíu Ioanínón* 16.21-60.
- Newton, Brian. 1972. The Dialect Geography of Modern Greek Passive Inflections. *Glotta* 50.3-4.262-289.
- Ruge, Hans. 1984. Zur Entstehung der neugriechischen mediopassiven Endungen. *Folia Neohellenica* 6:132-143.
- Stump, Gregory. 1993. On Rules of Referral. *Language* 69.449-479
- Tantalou, Niki & Luigi Burzio. 2005. Modern Greek Accent and Faithfulness Constraints in OT. Unpublished Johns Hopkins University ms. (<http://www.cog.jhu.edu/faculty/burzio/#5>)
- Thavoris, Andonis. 1977. Morfolojiká merikón ídiomáton tis ðitikís makeðonías, in *A' Simbósio ylosolójías tu vorjoelaðikí xorí. (Ipiros - Makeðonía - Óráki) 28-30 Aprilíu 1976. Praktiká*. Thessaloníki: Institute for Balkan Studies, pp. 75-95.
- Williams, Edwin. 1981. On the Notions 'Lexically Related' and 'Head of a Word'. *Linguistic Inquiry* 12.2.245-274.