Something Out of Nothing: Degrammaticalizing Grammaticalization

by

Brian D. Joseph   &   Angela Ralli
Laboratory for Greek Dialectology   Laboratory of Modern Greek Dialects
The Ohio State University   University of Patras
[joseph.1@osu.edu]   [ralli@upatras.gr]

1. Introduction

Grammaticalization as a framework for the study of language change has made a number of claims about what can happen to grammatical material in language across time. We examine here some case-studies that suggest that claims regarding the origin of grammatical material are too narrow and that a broader view is needed of what is possible. We start with some preliminaries that give the basis for the claims which we are challenging, and then turn to our case-studies, one from Greek and one from Sanskrit.

2. Preliminaries I: Clines in Grammaticalization

One of the key elements within the framework of grammaticalization studies is the positing of various "clines" and one of the key clines is that given in (1), the Cline of Grammaticality (Hopper & Traugott 1993: 7):[1]

(1)   content   >   grammatical >   clitic >   inflectional
        item   word   affix

This cline means that lexical content items, such as *pen* or *squirrel*, are less grammatical in nature than grammatical (i.e., function) words, such as *of* or closed class items such as pronouns, and as words, such elements are less grammatical in nature than clitics, which are dependent on a host element but have some integrity and, in general, some mobility, and all of these elements are less grammatical in nature than an affix, which is dependent and relatively immobile.[2]

Moreover, there is a cline implicit in the well-known and well-instantiated development by which a morphophonological process emerges out of originally affixal inflection. An illustrative case is Germanic Umlaut phenomena, found all over the Germanic languages and exemplified in

---

[1] Derivational affixes are not included by on this cline, an omission which seems to us to be unfortunate. This is due to Hopper and Traugott's treatment of derivational morphemes as "part of the lexicon" (p.5); they include derivation on what they call a "cline of lexicality" (p.7) with "syntactic phrase, compound, and affix" as the points on the cline. Given the lexical nature of derivation, it seems reasonable to view it as to the left of inflection on the Cline of Grammaticality. See below, in §3.2, for some further discussion of this point.

[2] See Zwicky and Pullum 1983, Zwicky 1985, Zwicky 1987, and Zwicky 1994 on the distinction between words, clitics, and affixes. See also Joseph 1988, 1990, and 2002 for the application of Zwicky's framework to various elements in the verbal complex of Greek; Sims and Joseph 2018 extend such analytic criteria to the verbal complex in Albanian, Macedonian, and Serbian.

(2) by English irregular noun plurals such as *foot/feet*, where the vowel-change plural of the modern alternation is the result of the fronting effect on the [o:] of the root by the front vowel [i] in the next syllable that marks the plural; fronted [œ:] ultimately gave the [ij] of the modern plural:

(2)   *fo:t (SG) / fo:ti (PL) > *fo:t / fœ:ti > *foot / feet*

The claims in (1) together with developments such as those in (2) allow for an extended cline of grammaticality, as in (3):[3]

(3)   content > grammatical > clitic > inflectional > morphophonological > phonological
         item   word   affix   process[4]   material

This extended cline is implicit in — and thus adapted from — the insights of Hopper (1994: 31) in his discussion of "phonogenesis". This phenomenon is the devolution of once fully meaning-bearing morphological material into mere "phonological bulk", nothing more than a part of the phonological make-up of a word with no morphemic and no semantic value; examples include the segments *-nd* in *friend*, which etymologically constituted a suffix marking a present participle but in modern English have no such value, or child language forms like *feets*, where the umlauted allomorph originally signaling plurality, has become the base form for the word. Particularly important about (3) is that Hopper refers to the rightmost stages of this cline, i.e. to developments as in (2) or as in *feets*, as an "advanced stage of grammaticalization".[5]

We return to this extended cline and especially its rightmost edges in our discussion of the case-studies. However, we need to turn now to another key feature of work done within the framework of grammaticalization, and offer an extended discussion of it, as a way of setting up the case-studies.

3. Preliminaries II: Unidirectionality in Grammaticalization

A key element of work in grammaticalization is the Principle of Unidirectionality, which can be stated as in (4), a definition that is adapted from various sources but is true to the sense of this principle as used by those working within the grammaticalization framework:

(4) Principle of Unidirectionality

---

[3] We would place derivational affixes between clitics and inflectional affixes on this cline.

[4] We refer here to a "morphophonological process", even though umlaut is a phonological effect, and was phonetically triggered at the point where the suffix was the high front vowel, because in later stages of English, including the modern period, there is no overt trigger, phonetic or otherwise, and umlaut has a morphological function, marking plurality in forms like *foot/feet*, *louse/lice*, and *man/men*, among others. Plural marking in such forms, therefore, has a morphological value, a phonological effect, and a processual realization, warranting a characterization as a morphophonological process.

[5] As an observant reviewer pointed out to us, in Lehmann (2015: 15) — and see also Givón 1979: 209 — zero is the last (rightmost) step in the cline of grammaticalization with regard to form. Moreover, Lehmann (2015: 191) overtly states that "The two main aspects of a complete process of grammaticalization are the recruitment of new material for grammatical function and the subjection of this material to rules of grammar leading to its final reduction to zero."

> Movement involving the emergence of grammatical elements is unidirectional, always in the direction of going from a less grammatical element to a more grammatical element.

"Less" and "more" in (4) is measured via the cline of grammaticality given in (1) and in extended form in (3). This principle can be stated somewhat differently, but with the same intent, in the terms of Haspelmath 2004, as grammaticalization always showing movement in the direction of the "parts of a constructional schema [coming] to have stronger internal dependencies".[6]

The import of this principle is the claim that there is movement only in one direction on the "cline of grammaticality".

3.1 On the Value of Unidirectionality

The principle of unidirectionality is widely held to be crucial to grammaticalization. Ramat (1998: 123), for instance, states that "grammaticalization theory [without a principle of] 'unidirectionality' would be left with a too vague definition of its field, including almost every instance of change". Haspelmath (2004: 17) has a similar view: "The *unidirectionality of grammaticalization* is the most important constraint on morphosyntactic change".

Moreover, Haspelmath (2004: 22) gives a very practical reason for the importance of this principle:

> unidirectionality in grammaticalization is very important in practical terms for the historical-comparative linguist. Suppose we have two related languages with no historical documentation, and one of them has a future-tense affix that looks similar to a future-tense auxiliary of the other language. If both directions of change were equally likely, we would not know what to reconstruct for the ancestor language. But because grammaticalization is overwhelmingly irreversible, the historical linguist can safely reconstruct the future auxiliary for the protolanguage in this case.

And he continues with a further practicality-based justification for the importance of this principle (2004: 22):

> Moreover, unidirectionality helps us assess the likelihood of competing etymologies even if older stages are attested. For instance, historical linguists of Indo-Aryan have long debated the etymology of the Hindi/Urdu ergative-case clitic =ne. Quite a few linguists in the 20th century traced this element back to Sanskrit *ina*, an instrumental suffix that would be a very plausible source from a semantic point of view. In a recent contribution to this debate, Butt (2001: 114) has pointed

---

[6] These "stronger internal dependencies" can be measured in terms of different kinds of boundaries between elements in a word or phrase, as indicative of different degrees of strength, i.e. different degrees of integration into the units they combine with. Thus a word boundary (often signaled with #) would be a stronger boundary than a clitic boundary (signaled with =, e.g. in the Leipzig Glossing Rules (https://www.eva.mpg.de/lingua/pdf/Glossing-Rules.pdf)), a clitic boundary stronger than an affixal morpheme boundary (+ or – in some notations), and that even stronger than the absence of a boundary altogether. And finer boundary distinctions can be drawn, e.g. between a derivational affix and an inflectional affix, where the former is more integrated into the stem, more lexical in nature, than the latter. See Joseph 2006 and 2014 for some discussion.

out that such a change would constitute a counter-example to unidirectionality and is hence very unlikely (one would have to postulate phonological expansion from [na] to [ne:] and a change from affix to clitic). This, among other reasons, leads Butt to reject this etymology and look for some other possible source of =*ne* in a full lexical item.

These considerations are not inconsequential, but the fact that they are rooted in the practical side of historical linguistic exploration means really that they are more for linguists interested in applying their methods than for speakers interested in producing meaningful utterances. Thus, we might well ask, working from the observation that language change is effected by speakers (not by linguists), whether these practical considerations have any bearing on what speakers do, and thus whether they tell us anything about language change.

In this regard, it can be noted that while there is a huge number of reported cases that are consistent with unidirectionality — indeed, just about every instance in the literature under the rubric of "grammaticalization" — finding cases consistent with a claim is not the same as testing the claim in a rigorous way. Rather, it is just like saying that the claim that all swans are white is proven correct by sighting a bunch of white swans; it is consistent with the claim of all swans being white but it does not prove the claim. On the other hand, the sighting of a single black swan — and as it happens, there are such creatures[7] — tests, and disproves, the claim.

3.2 More Questions about Unidirectionality

A more pointed question about unidirectionality is whether it really tells us anything. Janda 2001, for instance, has argued that a claim of unidirectionality for grammaticalization is built into the definition of grammaticalization, inasmuch as the notion itself refers only to movement along the cline in the direction of greater grammaticality for the element in question. Janda likens it to the activity of "walking north" in that one is either walking north or not, and walking in a different direction is not a "counter-example" to walking north; rather, it is merely a different activity, something other than walking north. That is, walking north can be instantiated in one and only way, i.e. walking north; if one walks slightly northeast or slightly northwest, then one is not walking due north. Viewed this way, unidirectionality is not an independent constraint or principle but rather seems definitional. It is thus a tautology (cf. Campbell 2001), in a sense irrefutable, and thus not very revealing as a constraint on grammatical change.

Haspelmath (2004: 26) responds to this line of criticism regarding unidirectionality in the following way:

> Yes, it is true that unidirectionality is built into the definition of grammaticalization. My current definition of grammaticalization is …
>
> > [(5)] A grammaticalization is a diachronic change by which the parts of a constructional schema come to have stronger internal dependencies.

---

[7] See Low 2016 (https://www.australiangeographic.com.au/blogs/wild-journey/2016/07/black-swan-the-impossible-bird/) for a discussion of the existence of black swans.

> This describes a unidirectional process, so saying that "grammaticalization is unidirectional" is strictly speaking tautologous. The point is, of course, that the easily imaginable reverse of this process does not occur (apart from a few exceptional instances). So this is not a substantive point at all, and one wonders why one hears it repeated so often.

One answer that might be given to Haspelmath's final question is that one hears it often because it is true, as Haspelmath himself admits.

Another pointed question that can be raised here is whether the Principle of Unidirectionality makes testable predictions. The testing of any predictions that might be made under this principle depends in part on the definition one adopts for grammaticalization and the classification one adopts for grammatical elements. For instance, Kuryłowicz (1965: 69) treats derivational affixes as less grammatical than inflectional affixes, as do Hopper and Traugott (1993), indirectly at least (see footnote 1), so that a move from inflection to derivation, a development presented in various works, including Joseph (2011, 2017), would be a counter-example to the claim that change involving grammatical elements is always in the direction of greater grammatical character for the element in question. However, for Haspelmath, "such changes, which are clearly attested, should not be lumped together with grammaticalization. Inflectional patterns do not show stronger internal dependencies than derivational patterns". The reference here to "stronger internal dependencies" reflects Haspelmath's own definition of "grammaticalization", given above in item (5).

3.3 Known Counter-examples to Unidirectionality

Regardless of the status of an inflection-to-derivation change, it is clear that there are cases of the opposite sort of development, generally referred to in the literature as *antigrammaticalization* or *degrammaticalization*, whereby elements show movement from more grammatical to less grammatical, i.e. movement up the cline, or show a weakening of the bonds of internal dependencies between elements. Norde 2009 has devoted an entire book-length study to the investigation of such counter-directionality, and among the better-known and generally accepted cases (and there are potentially many many more, cf. Joseph 2014), the following eight actual cases in (6) can be cited:

(6) Attested cases of anti-/de-grammaticalization

a. English and mainland Scandinavian development of genitive ending (word-level suffix) *–(e)s* into the phrasal affix (or clitic?) *'s* (as in *the Queen of England's hat*)
b. Irish 1st person plural subject suffix *-muid* > independent pronoun *muid* 'we'
c. Japanese adverbial subordinator *-ga* "although" > free linker *ga* "but"
d. Enontekiö Saame abessive suffix chain **-ptaken* > clitic *=taga* > free postposition *taga* (helped by loss of vowel harmony in this variety)
e. Estonian question marker *-s* > *=es* > free particle *es*
f. *to*-infinitives in English: nothing could intervene between *tō* and *-nne* gerund in Old English, but "split" infinitives with *to* are possible now, e.g. *to boldly go* … (thus a weakening of internal bonds of the construction, thus movement up the cline)

f. free adverb *ksaná* 'again' in Modern Greek < verbal preverbs *eks-ana-* in earlier Greek (cf. Méndez Dosuna 1997), thus showing movement up the cline (and there is the possibility as well of compounding of adverb *ksaná* with a verb (Ralli 2013), e.g. *ksana-γráfo* 'I write again' in Modern Greek)

g. Latin rigid prefix *re-* "again" > Italian flexible prefix *ri-*, e.g. *ridevo fare* 'I must do again' ("flexible" in terms of being able to "climb" to attach to a higher controlling verb, versus "rigidity" in Latin of only attaching onto semantic host)[8]

A bit of deconstruction, pro and con, concerning the examples in (6) is in order. In particular, regarding the Germanic genitive developments, one has to ask in what sense this is "one" change, one instance of antigrammaticalization, as there are different languages, different chronologies, and different sets of speakers involved. So this "one" change may actually represent several examples of antigrammaticalization, at least two and maybe more. Similarly, the developments with the English *to*-infinitive and Italian *ri-* prefix (if the facts are as Haspelmath suggests) involve a change in the grammatical properties, specifically the degree of bondedness ("internal dependencies") of a given element, in the direction of weaker internal dependencies; as such, they are legitimate counter-examples to unidirectionality.[9]

However, the Irish, Japanese, and Greek cases — maybe even Saame and Estonian — might be dismissed as "lexicalization", i.e. slicing off a piece of a word, especially an original affix, and "upgrading" it to status as an independent word, as with *ism* 'political/economic system' (from terms like *communism*/*socialism*/etc.) or *ologist* 'medical specialist' (from terms like *cardiologist*/*neurologist*/etc.) These "lexicalizations", and there are many more that can be cited — Janda 2001 gives some 80 such cases, not all via resegmentation — mean that under the right conditions, via the right kind of process, it is possible for a nonword, and in particular, an affix, to develop into a word, moving leftward, from right to left, from more grammatical to less grammatical, on the cline in (1). In this last sort of case, it must be admitted that not all of these are necessarily all that compelling as counter-examples, since even material that is non-affixal (even if not etymologically morphemic) can be "upgraded" to word status, as with *copter* from *helicopter* (where the etymological morphemic analysis is *helic-o-pter*) and even parts of phrases can be "upgraded" as with *cuppa* (British English, from *cup of tea*) or *two-by* (American English, from *two-by-four (inch piece of cut wood)*.

It is telling, moreover, that even Haspelmath (2004: 29) recognizes the eight instances in (6), but only these eight, as he says that "the easily imaginable reverse of this process does not occur (apart from a few exceptional instances)". His parenthetical is a striking admission that the "easily imaginable reverse" does in fact occur.

4. Clines and Claims

We return now to the clines of grammaticality presented in (1) and (3) above in section 1, and repeated here as (7):

---

[8] Haspelmath bases this example on pairs such as *devo rifare* 'I-must redo' and *ridevo fare* lit. 'I-remust do' but it is not clear that such mobility of *ri-* is grammatical for all speakers of Italian.

[9] Joseph 2011 adduces further examples of the weakening of an internal dependency within a form, such as *another whole situation* becoming, in colloquial American English, *a whole nother situation* where the internal segment-to-segment bonding within the indefinite article *an* is weakened and the form is split up.

(7) content > grammatical > clitic > inflectional > morphophonological > phonological
    item   word   affix   process   material

With this last part on the right ("affix > morphophonological process > phonological material"), the cline means that unidirectionality is equivalent to something developing into nothing, where "nothing" is "mere" phonology — the absence of an overt grammatical form, except for a feature of the phonological make-up of a word-form — and it has arisen out of something, i.e. out of a once-freestanding element, in keeping too with Hopper's "phonogenesis". And, indeed, as noted above in footnote 5, a zero — truly nothing — is seen as the endpoint of grammaticalization in Lehmann 2015.

Given that there appear to be instances of anti-/de-grammaticalization, the nothing-out-of-something interpretation of the right edges of the cline in (3) leads to a question: are there instances of anti-/de-grammaticalization that start with the zero endpoint of the extended cline? In other words, can an overt grammatical marker arise ultimately out of nothing, out of a mere phonetic or phonological effect that has been reinterpreted as having an independent existence as a grammatical marker, in the reverse directionality of something developing into nothing? That is, in grammatical change, can nothing develop into something?[10]

Our answer is yes, and we present two such cases here, one from Greek and one from Sanskrit. As the discussion in sections 5 and 6 show, the path that leads from nothing to something involves a string of perfectly ordinary types of historical changes, including sound change, analogy, semantic change, reanalysis of opaque elements, and the like.[11] It is the concatenation of these rather mundane historical events — these changes — that ultimately gives a grammatical formative out of "nothing"; it is not the case that "nothing" turns directly into a grammatical "something" in one step. But claims in the literature about directionality in grammatical change and examples consistent with unidirectionality have never been limited to just adjacent points on the cline; rather they look at the totality of movement from some starting point to some endpoint, and several steps can be involved. It is thus reasonable, in presenting here instances of nothing turning into something, to consider the combined effect of these changes piling up, as it were, to give a concrete grammatical formative out of an earlier starting point stage that is has no substance or is simply a phonetically determined element. We turn now to these case studies.

5. Case Study I: -γ- in the Modern Greek imperfect tense

---

[10] There is a theoretical issue beyond unidirectionality that this material bears on, namely whether the morphological affiliation of a segment is detectable in the phonology. Van Oostendorp (2007) and Revithiadou (2007)) refer to "morphological colours", and suggest that all elements in an underlying morpheme are coloured, i.e. have their own index as to their morphological affiliation; epenthetic elements are thus colourless. Thus, constraints against epenthesis are constraints against colourless elements. "Nothing" in our approach can be construed as "colourless", so if nothing can develop into something, then "colourless" elements can develop into "coloured". Although van Oostendorp and Revithiadou were not focused on the diachronic side of such a theoretical construct, clearly, given our accounts in §5 and §6, the possibility of movement between "colourless" and "colourful" must be accommodated within their framework.

[11] There is, to be sure, a certain similarity between what we argue for here with the development of a new function for the anti-hiatal consonant and *exaptation*, as described and promoted by Lass 1990. That is, as here, in exaptation, a (marginal) element takes on a new grammatical function. While we have some doubts about whether exaptation is a distinct kind of historical event, i.e. a distinct mechanism of change (cf. Joseph 2016), we note that these examples we present of a zero starting point ultimately taking on grammatical value are not cases of "doing something with junk" (as in the title of Lass's article) as there was nothing there to start with (a "zero").

The Greek case-study involves the emergence of a grammatical formative, specifically an inflectional suffix, with the shape -γ- (allophonically realized as [j] in front of /i/ and /e/, see also sections 5.1 and 5.2) in some dialects of Modern Greek. As noted by Ralli (1988, 2005), this -γ- marks the imperfective aspect in past tense forms of the traditionally known as "imperfect tense". It occurs with verbs that originate from Ancient Greek contract verbs, belonging to Modern Greek second inflection class that is characterized by a systematic stem allomorphy pattern *X(a) ~ Xi*. An illustrative paradigm is given in (8) from the verb stem *milá-* 'speak' (cf. 1SG present *miló* / 2SG *milás*; 1SG past perfective *mílisa* / 2SG *mílises*):

(8) 1sg   míla-γ-a 'I was speaking'   1pl milá-γ-ame   'we were speaking'
     2   míla-j-es 'you were speaking'   2   milá-γ-ate   'you were speaking'
     3   míla-j-e '(s)he was speaking'   3   míla-γ-an/milá-γ-ane 'they were speaking'

The -γ- imperfect forms are very common in the Peloponnese, the Cycladic islands, and the Sporades, but occur also in Old Athenian, and some northern varieties of Sterea Ellada and Thessaly (Central Greece). They have become frequent in Standard Modern Greek, where they compete with the more standard forms in -*us*-, an imperfect formation that was originally typical of the northern varieties of Greek (Chatzidakis 1905-1907):[12]

(9) 1SG   mil-ús-a 'I was speaking'   1PL mil-ús-ame 'we were speaking'
     2   mil-ús-es 'you were speaking'   2   mil-ús-ate 'you were speaking'
     3   mil-ús-e '(s)he was speaking'   3   mil-ús-an(e) 'they were speaking'

In what follows, we show that the emergence of the -γ- suffix is the result of the convergence of several factors:

(10) a. two ways in which Medieval Greek (MedG) and Early Modern Greek (EMG) dealt with vowel hiatus;[13]
      b. the phonological relationship of [j] and [γ] as well as of [j] and [i];
      c. the inheritance of certain imperfect forms with past tense endings occurring in a related formation

We address each of these factors in turn.

5.1 Vowel Hiatus

MedG and EMG resolved vowel hiatus (V V sequences) in various ways (Holton et al. 2019: 79). At morpheme boundaries, hiatus was settled by the appearance of the velar voiced fricative *γ* before the back vowels *a, o, u* and the palatal voiced fricative *j* before the front vowels *e, i*. In EMG, this *γ* is very common in certain areas, mostly in those of the southern dialectal varieties, that is, the

---

[12] Pantelides 2003 has an excellent and thorough discussion of the diachrony and dialect distribution in parts of Greece for this imperfect tense formation; we differ in certain respects from his account, in part due to our need to simplify the presentation somewhat. In any case, though, he does not approach these developments from the perspective of grammaticalization and unidirectionality addressed here.

[13] According to Holton et al. (2019: xix), the medieval period stretched from about 500 to 1500, when the Early Modern Greek period began. Early Modern Greek ended around 1700.

Peloponnese, the Cycladic islands, Ionian islands, and Cypriot. Sometimes in learned lexical items, it is used to block synizesis (e.g., 1617 in Syros, *opío* > *opíjo* 'which' (Drakakis 1967)). Hiatus of *i* before a vowel is resolved by the *i* becoming *j*, as in *piáno* > *pjáno* 'I take/handle'.

The issue of dealing with vowel hiatus intersects with what Householder (1964) called one of the "*dreams*" of Greek phonology, namely how to analyze [j] (which he treats as a voiced palatal glide, which most likely was the first step on the way to its current fricative pronunciation as [j]).[14] The situation admittedly is complicated due to diglossia and occurrence of katharevousa (high-style) forms in demotic (colloquial) usage, e.g. *vivlío* 'book', *áðia* 'license'. In any case, what is important for us here is that there is a complementarity to the way in which [γ] and [ʝ] are distributed as hiatus-breakers:

(11) a.i   a o u + a o u   ==>   a o u – **γ** – a o u

      a.ii   a o u + e i   ==>   a o u – **ʝ** – e i

      b.   i + V   ==>   **ʝ** V

That complementarity becomes important when one considers the relationship between these two sounds is the topic of the next section.

5.2 The Relationship between [ʝ] and [γ]

At one level of analysis, that is, ignoring impositions from the high-style katharevousa variety of Greek, as suggested in (11), we find complementary distribution between [γ] and [ʝ], as indicated in (12):

(12)   γ   /__ {a o u}

        ʝ   /__ {e i}

Therefore, in this way, these two sounds can be considered to be allophones of a single phoneme. Complementarity also applies to [i] and [ʝ], as indicated in (13):[15]

(13)   i   /__ C

        ʝ   /__ V

Moreover, as indicated in (14), there are morphophonemic alternations involving [ʝ] and [γ] in words that are plausibly related synchronically (and are certainly related from a historical perspective), or are forms within the same paradigm, and the same holds for [ʝ] and [i], as shown in (15):

---

[14] This "dream" is Householder's characterization of the analytic problem for classical phonemic analysis caused by the presence in Greek of phonetically conditioned alternations between [i] and [ʝ] on the one hand and [γ] and [ʝ] on the other.

[15] Admittedly, for classical phonemic theory, having a single phone to be assigned to two different phonemes is problematic. However, we ignore this issue here.

(14)   γón-os 'offspring'   ~   ɟen-ó 'give birth'
        γom-ón-o 'I stuff'[16]   ~   ɟem-íz-o 'I fill'
        févγ-o 'I leave'   ~   févɟ-i 's/he leaves'
        lóγ-os 'reason.NOM.SG'   ~   lóɟ-i 'reasons.NOM.PL'

and between [i] and [ɟ]:

(15)   peðí 'child.NOM/ACC.SG'   ~   peðɟ-á 'child-NOM/ACC.PL'
        spíti 'house. NOM/ACC.SG'   ~   spitɟ-ú 'house-GEN.SG'

These alternations show that there are systematic relationships between these segments as part of the grammar of Greek and the relationships are accessible to speakers, whatever one might decide regarding these facts and a solution to the "dream" regarding the status of [ɟ]. These facts mean that *γ ~ ɟ* alternations are part of Modern Greek morphophonology (and maybe part of its phonemic system as well), and so also with *i ~ j* alternations.

5.3 Inherited imperfects and their development

The final piece needed to understand the emergence of *-γ-* as a marker of the imperfective aspect is the form of the imperfect tense in Ancient Greek in the class of verbs that led to the second inflection class of Modern Greek, namely the so-called "contract" verbs. Such verbs in Ancient Greek showed circumflex accent on the final syllable, i.e. on the person-and-number ending, as a result of a contraction of the stem-final vowel and the vowel of the ending, e.g. 1SG *timō̃ < *timā-ō* (stem *timā-* + 1SG ending *-ō*); depending on what the stem vowel was, specifically *α* ([a]), *ε* ([ɛ]), or *o* ([o]), the contractions yielded different results. The imperfect of the *α*-stem contract verbs is given in (16) and that of the *ε*-stems in (17),[17] with both the Ancient Greek paradigm and the expected Modern Greek outcome as has been shaped after the phonological changes in the Hellenistic period (ca. 3rd c. BC – 3rd c. AD):[18]

(16) α-contract verbs (*timá:-* 'honor'):

	AGrk (Classical period)		MGrk (expected)
1SG	e-tímōn (< earlier *e-tíma:-on)		(e)-tímo(n)[19]
2	e-tímās (< earlier *e-tíma:-es)	==>	(e)-tímas
3	e-tímā (< earlier *e-tíma:-e)		(e)-tíma

---

[16] Admittedly, *γomóno* is a dialectal form, as opposed to *ɟemízo*, which is a common form, but the pair shows the *γo/ɟe* alternation of interest here.

[17] The *o*-stems are irrelevant for the developments discussed here, since they changed inflection class with the insertion of an *-n-* between the *-o-* of the stem and the inflectional ending, a development which ultimately led to the formation of the *-on-* verbalizer via a reanalysis (e.g. *ðilo-n-ō > ðil-on-o* 'to declare'). See Browning (1969) for details.

[18] Vowel length had disappeared from the Greek system in the Hellenistic period, and the Ancient Greek aspirated 'ph' as well as 'ou' and 'ei' changed into [f], [u] and [i], respectively; moreover, word-final *-n* was lost and in some instances restored analogically (hence our parenthesizing it in giving the expected outcomes in Modern Greek).

[19] We put the ancient past-tense prefix *e-* (the "augment") in parentheses as it is ultimately deleted when unstressed in Standard Modern Greek and some of the Modern Greek dialects. Note, however, that some dialects still retain it, as for instance, Heptanesian, spoken on the Ionian islands. On the augment, see also section 5.4.

(17) ε-contract verbs (*philé-* 'love' (later 'kiss'):

	AGrk (Classical period)		MGrk (expected)
1SG	e-phíloun (< earlier *e-phíle-on)		(e)-fílu(n)
2	e-phíleis (< earlier *e-phíle-es)	==>	(e)-fílis
3	e-phílei (< earlier *e-phíle-e)		(e)-fíli

These developments can be compared with those found with the Ancient Greek noncontract verbs, e.g. *graph-* 'write', where the imperfective past endings were replaced by those of the perfective past (aorist), the two paradigms being levelled as far as the person-number endings are concerned.

(18) Noncontract imperfect

	AGrk (Classical period)		MGrk	vs. MGrk aorist[20]
1SG	é-graph-on		é-γraf-a	é-γrap-s-a
2	é-graph-es	==>	é-γraf-es	é-γrap-s-es
3	é-graph-e		é-γraf-e	é-γrap-s-e

All the pieces are in place now to examine the specifics of the emergence of the *γ*-imperfect, to which we turn in the next section.

5.4 The Emergence of -γ- in the Contract Imperfects

The MG paradigms, as given in (16) and (17), point to a problem of sorts with the 3SG form. In particular, types such as *(e)tíma* and *(e)fíli* were not obvious as past tense forms, since the prefixed ancient augment *e-* had lost its past tense function (Ralli 1988). Greek speakers clearly felt that something was problematic with these forms and thus reshaped them by adding the 3SG ending *-e* of the noncontract verbs, which was the ending of the past perfective tense (aorist), giving them an overt and clear marking as 3SG (see (18)). As a consequence, as early as the 15th c. (Holton et al. 2019: 1576), forms such as *etíma-e / efíli-e* occur.

Once there were these reshaped forms *e-tíma-e / efíli-e*, [ʝ] would emerge as a hiatus-breaker, via the vowel hiatus developments, giving *etíma-ʝ-e / efíl-ʝ-e* (or alternatively, *efílije* with the (a.ii) hiatus-breaking strategy). The *γ*-suffix then developed through the reinterpretation and spread of this phonetic fricative, [ʝ] that arose in the transition between the back vowel *-a-* and the front vowel *-e*, and out of [i] before a vowel ending. Since *-e* was the inflectional suffix of the 3SG, the parts of forms before the ending, *Xa-* and *Xi-*, were recategorized as stems, and the [ʝ] was reinterpreted as the marker of the imperfective aspect, thus filling a slot for aspectual marking between the stem and the personal ending. In this way, the imperfective aspectual marking came to be overtly realized, in accordance with the perfective marking *-s-* of the aorist tense (see (18) and footnote 14).

---

[20] The *-s-* of the aorist forms is the perfective marker, whereas the endings are the exponents of past, person and number (Ralli 1988, 2005).

From that point of entry into this inflectional paradigm, the [ʝ] spread to the other cells of the paradigm. And, since before a front vowel in Modern Greek, [ʝ] is the phonetic realization of underlying /γ/, and is systematically related phonologically and morphophonologically to [γ] (as seen above in (12) and (14)), the sequence *-aje* was reinterpreted (morpho)phonemically as being /-aγe/. Once there was such a reanalysis, *-γ-* spread to personal forms where *-j-* was not phonetically justified, e.g. with the 1SG ending *-a-*, giving [tímaγa] 'I was honoring', from underlying /tíma-a/.

Thus, this grammatical suffix *-γ-* arose out of 'mere' phonology, out of a "colourless" (see footnote 7) element, so that it is really something — a grammatical something — out of nothing, as it were.

The developments with *-γ-* in the imperfect tense contrast with what occurred in other dialects, showing that there was a need to fill a slot marking this aspect, to which dialects responded differently:[21]

(19) Contract imperfects in other dialects

    a. Northern Greek: *-us-*, e.g. *aγap-us-a* 'I was loving' (adopted by Standard Modern Greek)
    b. Cappadocian: inherited *-isk*, *-an-/-in-* or combined *-inisk-*, e.g. Delmeso *thoriska/thorina* 'I was seeing', Fertek *rotiniska* 'I was asking' (Dawkins 1916)
    c. Cretan: *-un-*, e.g. *epuluna* 'I was selling' (Angelomati-Tsoungaraki 2007)

These various alternative forms make the creation of imperfect marker *-γ-* all the more striking as they show that phonologically *independent* material was available that could in principle have been used for an innovative imperfect.

6. Case study II – the Sanskrit perfect

The second case study involves a perfect tense formation that is found with a small class of verbs in Sanskrit. The basic facts are as follows.

The canonical form of the perfect tense in Classical Sanskrit is that there is a reduplication syllable, generally of the shape *Ca-* but subject to various constraints that are irrelevant here, followed by the root in its full vocalic form in singular active forms and by the root in a weakened vocalic form (e.g., absence of *-a-*, and no diphthong or long vowel) in other forms. However, there is a subclass of roots with the shape CaC- (mostly) that form the weakened stem via the occurrence of the vowel *-e-* as the root vocalism. For example, the root *pat-* 'fly' has a 3PL form *petur* 'they have flown' instead of the expected *paptur* (which actually occurs but was on the way to extinction).

The emergence of this *-e-* as a marker of the weakened stem is another example of a grammatical formative emerging from a purely phonological development, and it thus adds to the "something-from-nothing" degrammaticalizing scenario seen in §5. This *-e-* developed by regular sound changes with two root shapes (*saC-* and *yaC-*), comprising a total of 5 roots in all, via the steps shown in (20), where the leftmost form reflects the weakened perfect stem formed from *Ca-* reduplication plus the zero-grade of the root:

---

[21] See also Pantelides 2003 on variation in Peloponnesian Greek.

(20)   a. *yam-* 'offer':   weak perfect stem *ya-ym- ==> *yem-* (via *ay > e*)
        b. *sad-* 'sit':   weak perfect stem *sa-sd- ==> *sazd- ==>
                                      *sayd- ==> *sed-* (via voicing of *s* next to *d*, elimination of
                                      z (a sound that Sanskrit in general eschewed) and *ay > e*)

These developments yielded alternations between the "strong" and "weak" stems *ya-yam-/yem-* and *sa-sad-/sed-*. From these alternations, a pattern was extracted/induced by speakers:

(21)   root CaC- ==> weak perfect stem CeC-

which can be modeled as the infixation of *-e-* into the consonantism of the root, or as a processual change by which *a ==> e* within the root.

      This pattern spread to other CaC- roots, some 40 in all (see Whitney 1889: §794g), e.g. *dabh-* 'injure' ==> weak perfect *debh-* (versus expected *dadbh-**), *tan-* 'stretch' ==> weak perfect *ten-* (versus expected *tatn-**), etc. It is important to note that the expected forms have clusters that are phonologically permissible in Sanskrit; *-dbh-* occurs in *adbhūta-* 'wonderful' and *-tn-* occurs in *patnī* 'lady'. Thus, the expansion of the C-*e*-C- type of weak stem formation was not a matter of the morphological rescuing of a phonologically problematic sequence.

      Rather, this innovative pattern with roots like *dabh-* and *tan-* represents the emergence of a new grammatical marker out of pure phonology (*-e-* < *a-y or *-a-z), thus with no lexical or affixal material as the historical basis for the process; thus once again, it represents a grammatical something emerging out of nothing.

7. Conclusion – Consequences for Grammaticalization

These developments show hallmarks of "grammaticalization" in that, from a functional standpoint, they involve the development of material with grammatical *function* out of material that was less (or even non-) grammatical originally. Thus, in a certain sense, they involve the movement of something that is less grammatical to something that is more grammatical, in keeping with expectations of unidirectionality.

      At the same time, however, in terms of *form*, they show counter-directional, degrammaticalizing, movement from a dependent phonological effect to a more independent affix, movement up the cline, leftwards away from the right edge of a cline such as that in (3). These stand as yet additional counter-examples to the "principle of unidirectionality" that animates much of the discussion within grammaticalization studies.

      Thus, such instances represent cases of "degrammaticalizing grammaticalization", a somewhat anomalous and unusual combination of traits, a virtual oxymoron. More important, perhaps, these examples show that grammatical material can originate in ways other than via the downgrading of lexical items.[22]

      From a broader perspective, these examples show that there is a much wider range of developments in grammatical change than is envisioned in most grammaticalization studies. Consequently, we would urge researchers to think in terms of the broader scope of grammatical change and to see grammaticalization as just one possible outcome, one possible set of

---

[22] In some ways, what we discuss here is not unlike what Gaeta 2004 calls "grammaticalization from below".

developments, within a much wider-ranging domain of grammatical change, rather than focusing so much energy, attention, and research talent on this one particular kind of grammatical change, grammaticalization.

Indeed, if we focus just on one type of movement involving grammatical material – from less to more dependent — we can miss interesting types of grammatical change.

REFERENCES

Angelomati-Tsoungaraki, Eleni. 2007. The social conscience of a Cretan of 1574. *Thisavrismata* 37: 122-152.

Browning, Robert. 1969. *Medieval and Modern Greek*. London: Hutchinson University Library.

Butt, Miriam. 2001. A Reexamination of the Accusative to Ergative Shift in Indo-Aryan. *Time over* matter, ed. by Miriam Butt and Tracy Holloway King, 105–141. Stanford: CSLI Publications.

Campbell, Lyle. 2001. What's Wrong with Grammaticalization? *Language Sciences* 23: 113-161.

Chatzidakis, George. 1905-1907. *Medieval and Modern Greek*. Athens: Sakellarios.

Dawkins, Richard. 1916. *Modern Greek in Asia Minor*. Cambridge: Cambridge University Press.

Drakakis A. 1967. Syros in the Ottoman period. *Epetiris Etairias Kikladikon Meleton* 6: 63-492.

Gaeta, Livio. 2004. Exploring grammaticalization from below. *What makes Grammaticalization? A Look from its Fringes and its Components*, ed. by Walter Bisang, Nikolaus P. Himmelmann, and Björn Wiemer, 45-75. Berlin: Mouton de Gruyter.

Givón, Talmy. 1979. *On understanding grammar* (Perspectives in Neurolinguistics and Psycholinguistics). New York: Academic Press.

Haspelmath, Martin. 2004. Directionality in language change, with special reference to unidirectionality in grammaticalization. *Up and down the Cline*, ed. by Olga Fischer, Muriel Norde and Harry Perridon, 17-44. Amsterdam: Benjamins.

Holton, David, Panagiotis Toufexis, Io Manolessou, Geoffrey Horrocks, Stamatina Lentari, and Marjolijne Janssen. 2019. *The Cambridge Grammar of Medieval and Early Modern Greek*. Cambridge: Cambridge University Press.

Hopper, Paul. 1994. Phonogenesis. *Perspectives on Grammaticalization,* ed. by William Pagliuca, 29-45. Amsterdam: John Benjamins.

Hopper, Paul and Elizabeth Traugott. 1993. *Grammaticalization* (1st edn., 2nd edn.: 2003). Cambridge: Cambridge University Press.

Householder, Fred W. 1964. Three Dreams of Modern Greek Phonology. *WORD* 20:sup2, 17-27 (DOI: 10.1080/00437956.1964.11659847).

Janda, Richard D. 2001. Beyond "Pathways" and "Unidirectionality": on the Discontinuity of Language Transmission and the Counterability of Grammaticalization. *Language Sciences* 23: 265–340.

Joseph, Brian D. 1988. Pronominal Affixes in Modern Greek: The Case Against Clisis. *Papers from the 24th Regional Meeting, Chicago Linguistic Society*, ed. by D. Brentari et al., 203-215. Chicago: Chicago Linguistic Society.

Joseph, Brian D. 1990. The Benefits of Morphological Classification: On Some Apparently Problematic Clitics in Modern Greek. *Contemporary Morphology*, ed. by Wolfgang Dressler, Hans Luschützky, Oskar Pfeiffer, and John Rennison, 171-181. Berlin: Mouton de Gruyter.

Joseph, Brian D. 2002. Defining "Word" in Modern Greek: A Response to Philippaki-Warburton & Spyropoulos 1999. *Yearbook of Morphology 2001*, ed. by Gert Booij and Jap van Marle), 87-114.

Joseph, Brian D. 2006. How accommodating of change is grammaticalization? The case of "lateral shifts". *Logos and Language. Journal of General Linguistics and Language Theory* 6.2: 1-7.

Joseph, Brian D. 2011. Grammaticalization: A General Critique. *Handbook of Grammaticalization*, ed. by Heiko Narrog and Bernd Heine, 193-205. Oxford University Press.

Joseph, Brian D. 2014. What counts as (an instance of) Grammaticalization? *Refining Grammaticalization*, special issue of *Folia Linguistica*, ed. by Ferdinand von Mengden and Horst Simon, 48.2: 1-23.

Joseph, Brian D. 2016. Being exacting about exapting: An exaptation omnibus. *Exaptation and Language Change*, ed. by Muriel Norde and Freek van Velde, 37-55. Amsterdam: John Benjamins.

Joseph, Brian D. 2017. Morphological Change. *The Cambridge Handbook of Morphology*, ed. by Andrew Hippisley and Gregory Stump, 743-764. Cambridge: Cambridge University Press.

Kuryłowicz, Jerzy. 1965. The Evolution of Grammatical Categories. *Diogenes* 51: 55–71. (Reprinted in: *Esquisses linguistiques*, Vol. II, 38–54. München: Fink, 1975.)

Lass, Roger. 1990. How to Do Things with Junk: Exaptation in language evolution. *Journal of Linguistics* 26.79–102.

Lehmann, Christian. 2015. *Thoughts on Grammaticalization* (3rd edn.) Berlin: Language Science Press.

Low, Tim. 2016. Black swan: the impossible bird. *Australia Geographic* JULY 11, 2016.

Méndez Dosuna, Julian. 1997. Fusion, Fission, and Relevance in Language Change: De-univerbation in Greek Verb Morphology. *Studies in Language* 21: 577–612.

Norde, Muriel. 2009. *Degrammaticalization*. Oxford: Oxford University Press.

Pantelides, Nikolaos. 2003. The Active Imperfect of the verbs of the '2nd Conjugation' in the Peloponnesian Varieties of Modern Greek. *Journal of Greek Linguistics* 4: 3-43.

Ralli, Angela. 1988. *Eléments de la morphologie du grec moderne*. Ph.D. Diss. Université de Montréal.

Ralli, Angela. 2005. *Morphology*. Athens: Patakis.

Ralli, Angela. 2013. *Compounding in Modern Greek*. Dordrecht: Springer.

Ramat, Anna Giacalone. 1998. Testing the boundaries of grammaticalization. *The Limits of Grammaticalization*, ed. by Anna Giacalone Ramat and Paul J. Hopper, 107-127. Amsterdam: John Benjamins.

Revithiadou, Anthi. 2007. Colored turbid accents and containment: A case study from lexical stress. *Freedom of Analysis?*, ed. by Sylvia Blaho, Patrik Bye, and Martin Krämer, 149-173. Berlin: Walter de Gruyter.

Sims, Andrea D. and Brian D. Joseph. 2018. Morphology versus Syntax in the Balkan Verbal Complex. *Balkan Syntax and Universal Principles of Grammar*, ed. by Iliyana Krapova and Brian Joseph, 99-150. De Gruyter Mouton.

Van Oostendorp, Marc. 2007. Derived environment effects and consistency of exponence, *Freedom of Analysis?*, ed. by Sylvia Blaho, Patrik Bye, and Martin Krämer, 123-148. Berlin: Walter de Gruyter.

Whitney, William D. 1889. *Sanskrit Grammar*. Cambridge: Harvard University Press.

Zwicky, Arnold M. 1985. Clitics and Particles, *Language* 61: 283-305.

Zwicky, Arnold M. 1987. Suppressing the Zs, *Journal of Linguistics* 23: 133-148.

Zwicky, Arnold M. 1994. What is a clitic?. *Clitics: A Comprehensive Bibliography 1892-1991*, ed. by Joel A. Nevis, Brian D. Joseph, Dieter Wanner, and Arnold M. Zwicky, xii-xx. Amsterdam: John Benjamins Publishing Co.

Zwicky, Arnold M. and Geoffrey K. Pullum. 1983. Cliticization vs. Inflection: English *n't*, *Language* 59: 502-513.