Complex Inflectional Exponents in Greek:
The Structure of Past Tense and the Realization of the Augment

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The study addresses the structure of past tense exponents of first conjugation verbs in Standard Modern Greek (SMG), focusing on the realization of the augment *e-*. The analysis explores how the expression of past tense involves complex affixal formation, where a single morphological [+past] feature is realized through multiple morphological positions. The augment is interpreted here as part of a composite inflectional configuration, arising from structural operations that duplicate and redistribute the Tense node.

For first conjugation verbs in SMG, past tense is expressed through verbal endings, while the prefix *e-* also bears tense features and appears left-adjacent to the stem, though its appearance is not uniform across all forms:

(1) a. é- ftan- e- s
PST-arrive-PST-2SG
'You were arriving'
b. *ftan- e- s
arrive-PST-2SG

(2) a. djávaz- e- s
study- PST-2SG
'You were studying'
b. (*e-) djávaz- e- s
PST-study- PST-2SG

In (1a), the augment obligatorily surfaces before the verb stem, when the verbal form has two syllables at most; its absence renders the form ungrammatical. In contrast, as in (2a), when the stem with the endings has more than two syllables and stress is located on the antepenultimate syllable, the augment cannot appear.

Table 1 illustrates the morphological paradigm of first conjugation verbs in MG, showing that tense and agreement are realized through distinct and combinable exponents, forming morphologically layered structures (cf. Spyropoulos & Revithiadou; see also Pavlou 2022).

Prs	**-past, -perf., -pass.**	**+past, +perf., -pass.**	**-past, -perfect., -pass.**	**+past, +perf., -pass.**
1sg	*djava-z-o* 'I study'	*djava-s-a* 'I studied'	*fta-n-o* 'I reach	*e-fta-s-a* 'I reached'
2sg	*djava-z-i-**s*** 'you study'	*djava-s-e-**s*** 'you studied'	*fta-n-i-**s*** 'you reach'	*e-fta-s-e-**s*** 'you reached'
3sg	*djava-z-i* 'she studies'	*djava-s-e* 'she studied'	*fta-n-i* 'she reaches'	*e-fta-s-e* 'she reached'
1pl	*djava-z-u-**me*** 'we study'	*djava-s-a-**me*** 'we studied'	*fta-n-u-**me*** 'we reach'	*fta-s-a-**me*** 'we reached'
2pl	*djava-z-e-**te*** 'you study'	*djava-s-a-**te*** 'you studied'	*fta-n-e-**te*** 'you reach'	*fta-s-a-**te*** 'you reached'
3pl	*djava-z-u-**n*** 'they study'	*djava-s-a-**n*** 'they studied'	*fta-n-u-**n*** 'they reach'	*e-fta-s-a-**n*** 'they reached'

Table 1: The morphological paradigm of SMG verbs

Following Bobaljik's (2008) binary system, the vocabulary entries that realize the Agreement suffixes are shown in (3). Each vocabulary entry immediately to the end of the stem and right-adjacent to the T terminal node realizes a subset of morphosyntactic features of the Agr terminal, driven by the *Subset Principle* (Halle 1997; Arregi & Nevins 2012).

(3) a. *s* ↔ [$_{Agr}$ +singular, -author, +participant]
b. *te* ↔ [$_{Agr}$ -singular, -author, +participant]
c. *n* ↔ [$_{Agr}$ -singular, -author, -participant]
d. *me* ↔ [$_{Agr}$ -singular, +author]
e. *Ø* ↔ [$_{Agr}$ +singular]

Tense constitutes a separate node as well. Examination of past-tense forms reveals a consistent alternation pattern in (4): *-e-* is inserted in mophological environments specified for the number and author features, and *-a-* functions as the Elsewhere form:

(4) a. *e* ↔ [$_{T}$ +past]/ __ Agr [+singular, -author]
b. *α* ↔ [$_{T}$ +past]/ __ Agr

To account for the occurrence of *e-* before the stem, we argue that the T node undergoes *Doubling*, a copying operation in the *Linear Operations* module (Arregi & Nevins 2012). *Doubling* is analyzed through the formalism of the so-called *Generalized Reduplication*, a term covering both *Full* and *Partial Reduplication* (in the sense of Harris & Halle 2005). It occurs prior to *Vocabulary Insertion*

and is driven by the morphotactic *T-Initiality* constraint, which requires that the T node appear at the leftmost edge of the T-domain:

(5) *T-Initiality*
Terminal T must be initial within T^{0max}.

Triggered by *T-Initiality*, *Leftward Doubling* applies to position a copy of T to the left of the verb stem. The operation applies to the complex head, i.e. to the terminals that have already participated in the syntactic operation of *Head Movement* (Koopman 1984; Travis 1984; Baker 1985). The target sequence is V-*v*-X-T, with X any functional node that participates in the formation of a verbal complex. The linear representation of the operation is given in (6):

(6) V *v* X T Agr → ⟦V *v* X T⟧ Agr → ⟦V *v* X < T⟧ Agr → V *v* X T - V *v* X T - Agr → T V *v* X T Agr

Doubling thus creates two T copies in two distinct positions: the original one in-situ following the verb root and preceding Agreement, and a second one in a displaced position before the verb stem. In addition to the exponents of the original T copy in (4), the exponents of the displaced T copy are provided in (7):

(7) a. *e* ↔ [$_T$ +past]/ [$_T{}^{0max}$ #__ *σσ*] b. *Ø* ↔ [$_T$ +past]/ [$_T{}^{0max}$ #__]

In (7a), *e-* appears only when the stem with its endings has two syllables (*σ*) at most, surfacing left-adjacent to the verb root and functioning to host the antepenultimate stress in SMG. When the verbal form has more than two syllables, T is realized by a null morpheme, as in (7b). The resulting entries are illustrated in (8):

(8) a. T – V – *v* – Asp – T – Agr
e – grap – Ø – s – *e* – *s* 'You wrote'
b. T – V – *v* – Asp – T – Agr
Ø – *djava – Ø – s* – *e – s* 'You studied'

Another *Doubling* mechanism can account for the appearance of *-ik* in perfective past forms. The morpheme *-ik* has an allomorphic relation with the augment *e-* and disregards the antepenultimate stress pattern (Spyropoulos & Revithiadou 2009):

(9) a. *vr-ik-e-s* 'you found' b. *vr-ik-a-me* 'we found'

Although its correlation with perfective aspect requires further investigation, the allomorphic behavior of *-ik-* derives from a *Doubling* operation, specifically a case of *Full Reduplication* (Harris & Halle 2005), to the right of the non-syllabic root. It is triggered by the *T-Noninitiality* constraint that requires T not to be initial within T^{0max}. Here, the result is a doubled T terminal hosting the morpheme *-ik* surfacing between the *v* and the original T nodes:

(10) V v T Agr →
V v ⟦T⟧ Agr →
V v T T Agr

(11) V – *v* – T – T – Agr
vr – Ø – ik – e – s
'you found'

To conclude, the proposed analysis situates the augment in SMG within a morphological perspective on inflectional morphology. The augment *e-* is shown to be not a mere phonological remnant, but an integral component of a complex inflectional structure derived through *Leftward Doubling*, triggered by the morphotactic *T-Initiality* constraint. This structural duplication of the T node yields a split realization of past tense, where the augment and the original verbal past morpheme together express a single inflectional feature. In addition, triggered by *T-Noninitiality*, another *Doubling* mechanism applies to the perfective exponent *-ik-* right-adjacent to the non-syllabic root and reveals systematic copies across the past tense paradigm.

References:

Arregi & Nevins 2012. *Morphotactics: Basque auxiliaries and the structure of spellout* • Baker 1985. *The mirror principle and morphosyntactic explanation* • Bobaljik 2008. *Missing persons: a case study in morphological universals* • Halle 1997. *Impoverishment and Fission* • Harris & Halle 2005. *Unexpected plural inflections in Spanish: Reduplication and metathesis* • Koopman 1984. *The syntax of verbs: From verb movement rules in the Kru languages to Universal Grammar* • Pavlou 2022. *The morphotactics of the cypriot Greek augment* • Spyropoulos & Revithiadou 2009. *The morphology of past in Greek* • Travis 1984. *Parameters and effects of word order variation*.