Revisiting inflectional morphology: Towards a new paradigm for teaching nominal inflection in Modern Greek as a second language

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1 Abstract

This paper seeks to resituate Modern Greek (MG) nominal inflection within a broader continuum of theoretical and applied linguistic analysis. The goal of our work is thus twofold. Firstly, we discuss the morphological structure of the MG nominal system and we propose an analysis which provides a formal account of inflected noun formation within the Paradigm Function Morphology framework (PFM, Stump 2001). Secondly, we emphasise the need for a simple and economical description of nominal inflection in L2 teaching material, one which goes beyond the conventional analyses, by taking into consideration the very principles of Paradigm Functions and Information Theory (Ackerman & Alouf 2013).

2 Introduction

The Greek nominal system comprises the three grammatical categories of gender, case, and number. It distinguishes three genders (MASC, FEM, and NEU), four cases (NOM, GEN, ACC, and VOC), and two numbers (SG and PL, Stephany & Christofidou 2009). Most of the existent proposals to the description of the MG nominal inflectional system are (a) gender-driven (following Triantafyllidis 1941, Table 1), and (b) morphologically-driven, based on the distribution of inflectional endings (among others Mackridge 1985, Ralli 2003, Klairis & Babiniotis 2005).

INFLECTIONAL CLASS A	INFLECTIONAL CLASS B	INFLECTIONAL CLASS C[1]
Masculine nouns in:	Feminine nouns in:	Neutral nouns in:
-os: *anθropos* 'human'	*-a*: *θalasa* 'sea', *mama* 'mum'	*-o*: *vutiro* 'butter'
-is: *piitis* 'poet', *manavis*	*-i*: *anaɟi* 'need', *poli* 'city'	*-i*: *peði* 'child'
'greengrocer', *prezvis*	*-os*: *psifos* 'vote'	*-ma*: *cima* 'wave'
'ambassador'	*-u*: *alepu* 'fox'	*-os*: *kratos* 'state'
-as: *filakas* 'guard', *tomeas*		*-as*: *peras* 'end'
'sector', *psaras* 'fisherman'		*-i* (<υ>): *oksi* 'acid'
-es: *kafes* 'coffee'		
-us: *papus* 'grandfather'		

Table 1. Gender-driven analysis of the MG nominal inflectional system (Triantafyllides 1941)

Ralli's morphologically-driven proposal for a division of MG nouns into eight inflectional classes (IC) is a very popular one among linguists. Such a division is based on (a) the

[1] More than one representative nouns of the three ICs are given, so as to cover various inflectional paradigms of (im)parisyllabicity.

presence of a systematic allomorphic variation of the stem, and (b) the form of the whole set of inflectional endings that are combined with the stems (2003: 86, see Table 2).

The previous inflectional modeling leaves us with the inflectional endings portrayed in Table 3 (see also Ackerman & Malouf 2013).

IC 1	*anθropos, psifos*
IC 2	*filakas, tomeas, psaras, piitis, manavis, prezvis, kafes, papus*
IC 3	*θalasa, mama, anaɟi, alepu*
IC 4	*poli*
IC 5	*vutiro*
IC 6	*peði*
IC 7	*kratos*
IC 8	*cima*

Table 2. MG ICs proposed by Ralli

IC	NOM-SG	ACC-SG	VOC-SG	GEN-SG	NOM-PL	ACC-PL	VOC-PL	GEN-PL
1	*-os*	*-∅*	*-e*	*-u*	*-i*	*-us*	*-i*	*-on*
2	*-s*	*-∅*	*-∅*	*-∅*	*-es*	*-es*	*-es*	*-on*
3	*-∅*	*-∅*	*-∅*	*-s*	*-es*	*-es*	*-es*	*-on*
4	*-∅*	*-∅*	*-∅*	*-s*	*-is*	*-is*	*-is*	*-on*
5	*-o*	*-o*	*-o*	*-u*	*-a*	*-a*	*-a*	*-on*
6	*-∅*	*-∅*	*-∅*	*-u*	*-a*	*-a*	*-a*	*-on*
7	*-os*	*-os*	*-os*	*-us*	*-i*	*-i*	*-i*	*-on*
8	*-∅*	*-∅*	*-∅*	*-os*	*-a*	*-a*	*-a*	*-on*

Table 3. MG inflectional endings (Ralli, 2003)

However, both gender and morphologically-driven approaches do not reflect on issues of frequency and availability of inflectional suffixes, leaving aside the crucial matter of the inflectional system core-periphery continuum. Moreover, they do not offer a systematic and economical determination of where to put the stem/affix boundary, allowing for a needless abundance of inflectional suffixes, e.g. *filak-as*, *piit-is*, *anθrop-os* instead of *filaka-s, piiti-s, anθropo-s*. Such a lack of descriptive economy impinges on the theory's predictability.

Therefore, a challenging research question we have to address is whether the morphological gradience of MG inflectional system can be captured by the PFM framework.

3 An alternative model for MG nominal inflection

Our main concern is to propose an integrated theoretical model of MG nominal inflection, and at the same time a robust learning model, which facilitates speakers/learners to handle morphological complexity, i.e. to make accurate guesses about unknown forms of words, based on exposure to known forms (see also Ackerman & Malouf 2013).

To achieve our goal, we had to revisit the issue of the stem space. In order to test the stem formation process, we proceeded with the analysis of about 82.000 MG nouns lemmatized into the *Reverse Dictionary of Modern Greek* (Anastassiadis-Symeonidis 2002), using as a theoretical basis previous work by Anastassiadis-Symeonidis (2012). The stem formation, indexing and selection processes led to a variety of distinct stems (see Table 4).

Stem (S)	Mode A	Mode B	Mode C
S1	X + V(owel) <α/η/ε/ου/α>	X + *i* <ι>	X + *i* <η>
S2a	X (bare stem)	X	X
S2b	X + V + C(onsonant) *ð/t*	X + *ʝ*	X + *e*

Table 4. MG noun stem formation

Where: X is a lexeme's stem. S2a is derived from S1, after removing the terminal vowel. S2b is derived from S1, by adding the consonant *ð* for masculine and feminine nouns, and the consonant *t* for neutral nouns. Mode A & B are the prototypical modes of stem formation. Mode B applies only to neutral nouns, subject to morphophonological processes due to palatalization. Mode C applies to instances of MG nouns, subject to rules of learned formation traced to diachrony (Ancient Greek), e.g. deverbal nouns in *-si/-ksi/-psi* or MASC-VOC-SG formation in *-e*, as it is found in the paradigms of a closed IC (IC3), without new members, handed down to MG from the Ancient Greek.

The data analysis yielded by our study provides strong evidence that MG nouns constitute 6 inflectional classes (IC1 to IC6), presupposing a minimal amount of segmentation into stems and exponents. An overall classification of MG noun stems and exponents is illustrated in Table 5 and 6:

IC	Stem	Examples	IC	Stem	Examples
IC1	S1	*filaka, piiti, tomea, psara, manavi, papu, kafe, prezvi*	IC4	S1	*vutiro, peði*
	S2a	*filak, piit tome, psar, manav, kaf*		S2a	*vutir, peð*
	S2b	*psarað, manavið, papuð, kafeð, prezve*		S2b	*peðʝ*
IC2	S1	*θalasa, anaʝi, mama, alepu, poli*	IC5	S1	*cima, peras, oksi*
	S2a	*θalas, anag/ʝ, mam, alep, pol*		S2a	*oks*
	S2b	*mamað, alepuð, pole*		S2b	*cimat, perat, okse*
IC3	S1	*anθropo*	IC6	S1	*kratos*
	S2a	*anθrop*		S2a	*krat*
	S2b	*anθrope*		S2b	

Table 5. PFM approach to MG ICs

	NOM-SG	ACC-SG	VOC-SG	GEN-SG	NOM-PL	ACC-PL	VOC-PL	GEN-PL	TYPE FREQ.
IC1	*s*				*es*	*es*	*es*	*on*	13000
IC2				*s/os*	*es*	*es*	*es*	*on*	33000
IC3	*s*		*o/e*	*u*	*i*	*us*	*i*	*on*	9000
IC4				*u*	*a*	*a*	*a*	*on*	20000
IC5				*os*	*a*	*a*	*a*	*on*	6000
IC6				*us*	*i*	*i*	*i*	*on*	200

Table 6. PFM approach to MG noun inflectional exponents

Such an analysis innovates in several ways:

1. It provides a unifying description of lexemes, inflected, derivative or compounds, since the stem space has been determined in a morphologically-sound mode.
2. It reveals the core-periphery inflectional classes, as some stems are more readily adopted than others, for instance stems in Mode A & B (Table 4) are prototypical compared to those in Mode C, S1 is prototypical compared to S2.
3. It contributes to the emergence of a prototypical and simple inflectional system, where syncretism reigns, i.e.: *-s* marker for MASC NOM SG and FEM GEN SG, *-on* for GEN PL, *-es* for MASC and FEM NOM/ACC/VOC PL, and *-a* for NEU NOM/ACC/VOC PL.
4. It is economical, since it allows for recognizable stems and a limited number of inflectional suffixes, without necessitating structural zeros or allomorphs.
5. It displays high predictability (Corbin 1987), e.g. [-learned]/low register suffixes attach to stems of the S2b type, especially for the highly-frequent classes IC1, IC2, IC4.

4 Towards a new model of nominal inflection for L2 teaching

Next, the PFM account of the MG nominal inflectional system is quantified in information-theoretic terms, by making use of INTEGRATIVE-COMPLEXITY, a metric that reveals to what extent morphological systems are organized in ways that allow them to be learned and used by native speakers (Ackerman & Malouf 2013). The researchers apply the measure of entropy to the nominal inflectional model provided by Ralli. In turn, we apply it to the PFM model, giving a more refined quantification, since we factor type frequency into our calculations. For instance, the probability of any lexeme belonging to any one class is not 1/6, as certain ICs appear to be highly-frequent (e.g. IC2 FEM and IC4 NEU, Table 6). Such measurements shed light into the possible inflectional class membership for unknown lexemes and the paradigm cell interpredictability (conditional entropy). It is obvious that, since our model allows for less ICs, easily recognizable stem blocks, and less exponents, entropy appears to be much reduced, and thus learnability is substantially higher.

A question that is raised is whether the previous probabilistic measures could be applicable also for L2 learners. They certainly work for Independent (Levels B1-B2) and Proficient Users (Levels C1-C2), but what about Basic Users who are not able to rely on previous language input? Our basic hypothesis is that low entropy morphological systems reflect patterned grammatical organization, which may be of great help to novice L2 learners.

As a next step we recorded and analyzed approaches to teaching inflection in ten MG second language textbooks targeting basic users. What comes as a conclusion is that even the newest textbooks exhibit a traditional gender-based approach, insensitive to paradigm generalizations and inflectional ending coreness/peripherality. Thus, we propose a staged instruction of MG nominal inflection to L2 learners, i.e. S1 as the most salient stem precedes in language teaching, S2a and S2b are explicitly derivable from S1 and they come next. Mode A & B are given instructional priority. The PFM robust system of lexeme realization ensures that stems, inflectional endings, rules of derivation and compounding fall under a unified and pedagogically sound description.

5 References

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