A PFM approach to the verb inflection system of Georgian dialects: example of Gurian

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Abstract

The verb inflection system of Kartvelian languages is characterized by the interaction of morphosyntactic features, morphosemantic features and inflection-class traits. Thus, an incremental and morpheme-based approach might fail to seize the multilevel interactions as well as the *systemic complexity* within Kartvelian verb inflection. However, *Paradigm Function Morphology* (PFM, Stump 2016) could provide a realizational and paradigm-based approach to verb inflection. Recently, linguists have adopted PFM model in the analyses of different Kartvelian languages and have obtained plausible results (Makharoblidze & Léonard 2020; Tran Ngoc 2020; She 2021). By applying PFM analysis model in Gurian verb inflection, we demonstrate the compatibility of the realizational and paradigm-based approach with traditional templatic analyses. At the same time, we also show that PFM model, by highlighting the paradigmatic dimension of verb inflection, could describe the systemic complexity in a parsimonious way.

Keywords: Kartvelian verb inflection, Paradigm Functional Morphology, Georgian dialects, Gurian

1. Introduction

A *complex* system is a system in which components of multiple levels interact in a non-linear way. In such a system, the whole is not simply the accumulation of its components, since it is also defined by the dynamic interactions of its components in different contexts (Picard 2019: 13-14; *cf.* Dahl 2004, as cited in Picard 2019).

The verb inflection systems of Kartvelian languages turn out to be complex systems *par excellence*. In the domain of Kartvelian verb inflection, the *systemic complexity* embodies in

the multilevel interactions among morphosyntactic features, morphosemantic features and inflectional-class traits (Makharoblidze & Léonard 2020). An illustrative example of the results of multilevel interactions is *preverbs* in Kartvelian languages. Kartvelian preverbs are polyfunctional morphemes which could convey tense-aspect-mood contents (morphosyntactic features) and directional meanings (morphosemantic features). In addition, the preverbation in the Series Ib of Georgian constitutes one of inflectional-class traits characterizing IC1&2[1] verbs (Makharoblidze 2018; Makharoblidze & Léonard 2020). Thus, it requires a model able to seize the multilevel interaction and the underlying patterns which make it possible to analyze the verb inflection system of Kartvelian languages in a parsimonious way.

Stump (2016) distinguishes two pairs of opposed approaches to inflection. On the one hand, he opposes incremental approach to realization approach. An incremental approach tends to presuppose a univocal relation between a given exponent and the morphosyntactic properties that the exponent introduces. However, in a realizational approach, it is not exponents that are supposed to introduce morphosyntactic properties. Conversely, it is morphosyntactic properties that introduce exponents. On the other hand, Stump distinguishes morpheme-based approach from paradigm-based approach. A morpheme-based approach may focus on syntagmatic relations and consider the latter as the only significant constituents of morphology, while a paradigm-based approach does not consider paradigms as epiphenomenal but treats paradigms as un irreducible domain specific to morphology.

Considering the polyfunctionality of morphemes, such as preverbs and version markers, and the underlying patterns of inflection classes in Kartvelian verb inflection, a realizational and paradigm-based approach turns out to be susceptible to seize the systemic complexity of Kartvelian verb inflection. *Paradigm Function Morphology* (PFM), as a realizational and paradigm-based theory, seems eligible to analyze Kartvelian verb inflection system. In fact, PFM model have been adopted by linguists in the analyses of Standard Georgian (Makharoblidze & Léonard 2020), Georgian western dialects (She 2021) and Svan (Tran Ngoc 2020) in recent years, and plausible results have been obtained.

In the present paper, we will adopt Makharoblidze & Léonard (2020)'s PFM analysis model – which has initially been conceived for Standard Georgian –, revise this model and apply it to the verb inflection of Gurian, a western Georgian dialect (*cf.* Tuite 1998). All the analyses of the present paper are based on G. Dgebuadze's Gurian corpus, which is published in the book entitled ახალი ქართული ენა წიგნი IV – დიალექტების მორფოლოგია: პარადიგმები [*New Georgian Language Vol. 4 – Morphology of Dialects: Paradigms*].

[1] That is, Inflection Class 1 and Inflection Class 2.

2. A PFM analysis model of Gurian verb inflection

In this section, we will first present Makharoblidze & Léonard's PFM analysis model (§2.1). Secondly, we will revise Rules of Exponence of this model in order to highlighting its compatibility with traditional templatic analyses, and we will illustrate the revised model through the example of Gurian IC2 verb DA-MALVA.

1.1 Makharoblidze & Léonard's PFM analysis model

Table 1 Georgian verb template

# Slot	Inflectional	Lexical/Derivational
-3	Preverb	
-2	Prefixal agreement marker	
-1	Version marker	
0		**VERB ROOT (√)**
+1		Passive marker
+2	Thematic suffix	
+3		Causative marker
+4	Imperfective marker	
+5	Mood (row) marker	
+6	Auxiliary	
+7	Suffixal nominal marker	
+8	Plural marker	

(Makharoblidze & Léonard 2020, modified; *cf.* She 2021)

Makharoblidze & Léonard distinguish two categories of slots within Georgian verb template, *i.e.*, inflectional and lexical (or derivational). As shown in Table 1, slots 0, +1 and +3 are considered as lexical or derivational, while slots -2, +4, +5, +6, +7 and +8 are considered as inflectional. As to slots -3, -1 and +2[2], they are polyfunctional morphemes. Based on this classification of slots, two realms within Georgian verb template are delimited, that is, the realm of stem, which involves lexical/derivational slots (-3, -1[3], 0, +1, +2, +3), and the realm of exponence, which involves inflectional slots (-3, -2, +2, +4, +5, +6, +7, +8).

[2] Thematic suffix can reflect the *Speech-act Participant* value of subject in some Gurian transitive verbs (*ga-v-recx-**av*** vs *ga-recx-_-s*) and, therefore, exhibits inflectional value, see She 2021.

[3] It is noteworthy that in Makharoblidze & Léonard's model, version markers (slot -1) are classed only in the realm of stem (*cf.* Makharoblidze & Léonard 2020).

Then, Makharoblidze & Léonard suggest three sets of rules of verb inflection:

Rules of Stem Choice (RSC): for a given *unrealized* lexeme, there is a corresponding stem paradigm. In accordance with the morphosyntactic (or/and morphosemantic) properties associated with this unrealized lexeme, RSC select a stem within the corresponding stem paradigm;

Rules of Exponence (RE): RE affix the selected stem by exponents introduced by the morphosyntactic (or/and morphosemantic) properties associated with the unrealized lexeme;

Morphophonological Rules (MPR): after the application of RSC and RE, „[w]hen necessary, controversial issues in the segmentation of stems and chains of affixes or clitics can eventually find a solution through MPR" (Makharoblidze & Léonard 2020: 5).

The abstract lexeme is realized after the application of the three sets of rules. We adopt the three sets of rules of Makharoblidze & Léonard' model in the analysis of Gurian verb inflection and propose a revision of RE. Contrary to RE of Makharoblidze & Léonard's model which exhibits a highly holistic approach, we propose a set of RE divided into four *blocks*, which allows to highlight the compatibility with Georgian verb template. In the next section, we will illustrate the revised model through the example of Gurian verb DA-MALVA.

2.2 Revised Makharoblidze & Léonard's PFM analysis model

Gurian CI2 verb DA-MALVA has a stem paradigm of three stems (see Table 2).

Table 2 Stem paradigm of Gurian verb DA-MALVA

STEM	SLOTS IN VERB TEMPLATE		
	-1	0	+2
X_1		*mal*	*ul*
X_2	*i*	*mal*	
X_3	*i*	*mal*	*eb*

These three stems could be selected according to RSC below:

(1) Rules of stem choice[4]

RSC1 Stem (L, σ: {Aspect: {Perfect ∨ Pluperfect}}) = ⟨mal-ul, σ⟩ = X_1

[4] Abbreviation, symbols, and operators:

L	lexeme
σ	property set
$p \wedge q$	*p* and *q*
$p \vee q$	*p* or *q*
$p = q$	*p* equals *q*
$\neg p$	not *p*

(*cf.* Stump, 2016)

RSC2 Stem (L, σ: {Tense: {Aorist} ∨ Mood: {Optative}}) = ⟨i-mal, σ⟩ = X_2

RSC3 Stem (L, σ: {}) = ⟨i-mal-eb, σ⟩ = X_3

The application of RSC follows Pāṇini's rules: while two or more rules are in competition, only the narrowest rule will be applied (Bonami & Stump 2016).

After the application de RSC, RE affix the selected stem. In the revised model, RE are divided into four *blocks* which are based on Georgian verb template. Precisely, Block A is associated with exponents of slot +4, Block B with slot +5, Block C (namely, a *portmanteau position class*, *cf.* Stump 1993) with slots -2, +6, +7 and +8, and Block D with slot -3 (see (2)).

(2) Rules of exponence

Block A (Slot +4)

A1 X, σ: {{Aspect: {Imperfect}} ∨ {Tense: {Present} ∧ Mood: {Subjunctive}} ∨ {Mood: {Conditional}} ∨ {Aspect: {Future} ∧ Mood: {Subjunctive}}} = X + *od*

Block B (Slot +5)

B1 X, σ: {{Tense: {Present} ∧ Mood: {Indicative} ∧ {Person: {1 ∨ 2}} ∨ {Tense: {Present} ∧ Aspect: {Imperfect} ∧ {Person: {1 ∨ 2}} = X + *i*

B2 X, σ: {{Tense: {Present} ∧ Mood: {Subjunctive}} ∨ {Aspect: {Future} ∧ Mood: {Subjunctive}} ∨ {Tense: {Aorist} ∧ Person: {1 ∨ 2}}} = X + *e*

B3 X, σ: {Mood: {Optative}} = X + *o*

Block C (Slots -2, +6, +7, +8) > *portmanteau position classes* (*cf.* Stump 1993)

C1 X, σ: {Person: {1} ∧ Number: {SG}} = *v* + X

C2 X, σ: {Person: {1} ∧ Number: {PL}} = *v* + X + *t*

C3 X, σ: {Person: {2} ∧ Number: {PL}} = X + *t*

C4 X, σ: {Person: {3} ∧ Number: {SG}} = X + *a*

C5 X, σ: {{{Tense: {Present} ∧ Mood: {Subjunctive}} ∨ {Aspect: {future} ∧ Mood: {Subjunctive}}} ∧ Person: {3} ∧ Number: {SG}} = X + *s*

C6 X, σ: {Person: {3} ∧ Number: {PL}} = X + *en*

C7 X, σ: {Tense: {Present} ∧ Mood: {Indicative} ∧ Person: {3} ∧ Number: {PL}} = X + *an*

C8 X, σ: {Aspect: {Perfect ∨ Pluperfect}} = X + Auxiliary

Block D (Slot -3)

D1 X, σ: {Tense: {¬ Present} ∨ Aspect: {¬ Imperfect}} = *da* + X

After the application of RE, two MPR, *i.e., Suffixal Haplology* and *Preverb Palatalization*, could be applied when necessary.

(3) Morphophonological Rules

MPR1 – Suffixal Haplology ⟨en⟩ → ⟨n⟩ / ⟨$X^{V\#}$⟩__

MPR2 – Preverb Palatalization ⟨da⟩ → ⟨de⟩ / __⟨$X_{2|3}$⟩

The lexeme is realized after the application of the three sets of rules. For example, for a given unrealized lexeme DA-MALVA which is associated with the morphosyntactic property sets {Mood: {Optative}; Person: {3}; Number: {PL}}, RSC2, RE-B3, RE-C5, RE-D1 and MPR1 are selected for the realization of lexeme:

RSC2 Stem (L, σ: {{Tense: {Aorist}} ∨ Mood: {Optative}}) = (⟨imal, σ⟩)
RE-B3 X, σ: {Mood: {Optative}} = X + *o* = imalo
RE-C5 X, σ: {Person: {3} ∧ Number: {PL}} = X + *en* = imaloen
RE-D1 X, σ: {Tense: {¬ Present} ∨ Aspect: {¬ Imperfect}} = *da* + X = daimaloen
MPR1 ⟨en⟩ → ⟨n⟩ / ⟨$X^{V\#}$⟩__ → daimalon
MPR2 ⟨da⟩ → ⟨de⟩ / __⟨$X_{2|3}$⟩ → deimalon

3. Conclusion and perspectives

In the present paper, we have shown a PFM analysis model of Gurian verb inflection which is plausibly compatible with traditional verb template and is susceptible to describe Gurian verb inflection in a parsimonious way. However, in the section 2, we have only analyzed a IC2 verb that is transitive and enclitized by auxiliary in Series III. Obviously, verbs from other inflection classes could exhibit different inflectional traits. Further study should be based on larger corpora and scrutinize verbs of all the four inflection classes in order that this PFM model could give adequate analyses to the majority of Gurian verbs.

Appendix: Conjugation of Gurian verb DA-MALVA

SERIES I		
PRS IND	v-i-mal-eb-i i-mal-eb-i i-mal-eb-a	v-i-mal-eb-i-t i-mal-eb-i-t i-mal-eb-an
IMP	v-i-mal-eb-od-i i-mal-eb-od-i i-mal-eb-od-a	v-i-mal-eb-od-i-t i-mal-eb-od-i-t i-mal-eb-od-en | -nen
PRS SUBJ	v-i-mal-eb-od-e i-mal-eb-od-e i-mal-eb-od-es	v-i-mal-eb-od-e-t i-mal-eb-od-e-t i-mal-eb-od-en
FUT IND	da- | de-v-i-mal-eb-i da- | de-i-mal-eb-i	da- | de-v-i-mal-eb-i-t da- | de-i-mal-eb-i-t

	da- | de-i-mal-eb-a	da- | de-i-mal-eb-an
COND	da- | de-v-i-mal-eb-od-i da- | de-i-mal-eb-od-i da- | de-i-mal-eb-od-a	da- | de-v-i-mal-eb-od-i-t da- | de-i-mal-eb-od-i-t da- | de-i-mal-eb-od-en | -nen
FUT SUBJ	da- | de-v-i-mal-eb-od-e da- | de-i-mal-eb-od-e da- | de-i-mal-eb-od-es	da- | de-v-i-mal-eb-od-e-t da- | de-i-mal-eb-od-e-t da- | de-i-mal-eb-od-en
SERIES II		
AOR	da- | de-v-i-mal-e da- | de-i-mal-e da- | de-i-mal-a	da- | de-v-i-mal-e-t da- | de-i-mal-e-t da- | de-i-mal-en
SUBJ II	da- | de-v-i-mal-o da- | de-i-mal-o da- | de-i-mal-o-s	da- | de-v-i-mal-o-t da- | de-i-mal-o-t da- | de-i-mal-o-n
SERIES III		
ÉVID I	da-v-malul-var da-malul-khar da-malul-a	da-v-malul-vart da-malul-khart da-malul-en | -arien
EVID II	da-v-malul-iq'avi da-malul-iq'avi da-malul-iq'o	da-v-malul-iq'avit da-malul-iq'avit da-malul-iq'en | -iq'nen
SUBJ III	da-v-malul-iq'o da-malul-iq'o da-malul-iq'os	da-v-malul-iq'ot da-malul-iq'ot da-malul-iq'on

(Dgebuadze 2017, own transliteration)

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