

# Person-number marking in Laki verb inflection: Some implications for the interfaces of morphology

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with the form *vidēbor* of the verb VIDĒRE 'see' determines both

- a) the fact that as a passive form, it is syntactically intransitive and has its 'object of perception' argument as its subject, and
- b) the fact that it exhibits *-b*, *-o* and *-r* as the respective exponents of future tense, first-person singular agreement and passive voice.



This canonical pattern is widely assumed to reflect a grammatical architecture in which a word form's syntax and morphology are invariably sensitive to the same property set.

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Here, we discuss a particularly clear example of just such a deviation, that of person-number marking in the system of verb inflection in Laki, an Iranian language (Taghipour 2017).

We argue that Laki requires a grammatical architecture in which the morphosyntactic property set that determines a word form's syntax may be distinct from the property set to which its inflectional realization is sensitive.

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# Talk outline

1. Person and number (P/N) in Laki verb inflection
  - The default pattern
  - Transitive verbs in preterite tenses
2. A mismatch between present and preterite verb inflection:
3. Accounting for the mismatch: The Laki mismatch arises at the interface of a syntactic pattern and a morphological pattern
4. The property mapping *pm*
5. Conclusion

# 1. Person and number (P/N) in Laki verb inflection

A Laki verb's inflection for person and number embodies an accusative pattern: a finite verb obligatorily agrees with its subject in person and number.

In the absence of an overt object constituent, the person and number of a transitive verb's object may also be expressed by pronominal marking on the verb.

(1) a. *me Ali=ya mown-em.*  
I Ali=DEF.OBJ see.PRS-SBJ.1SG  
'I see Ali.'

b. *mown-em=et.*  
see.PRS-SBJ.1SG=OBJ.2SG  
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(2) *det-al=a hat-en.*  
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# 1. P/N in Laki verb inflection: The default pattern

Some P/N markers are **suffixes**; others are **clitics**.

The person-number suffixes serve as obligatory marks of subject agreement in the present tense (1) and in intransitive clauses in the preterite tenses (2).

The clitics serve as pronominal object markers in the present (1b).

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# 1. P/N in Laki verb inflection: Transitive verbs in preterite tenses

Transitive verbs exhibit a different pattern in the preterite tenses.

P/N **suffixes** serve as pronominal object markers and obligatory subject agreement is marked by a **clitic** in VP-second position —except in the third-person singular, where it is marked by a clitic hosted by the verb.

## (3) Subject-agreement clitics in preterite transitives

- *Clitic occupies second position within VP (= VP<sub>2</sub>)*

a. *me*      *Ali=m*      *di.*

I      Ali=**SBJ.1SG**      see.PST

‘I saw Ali.’

b. *di-n=em.*

see.PST-**OBJ.2SG=SBJ.1SG**

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- |              |              |            |                         |
|--------------|--------------|------------|-------------------------|
| a. <i>me</i> | <i>Ali=m</i> | <i>di.</i> | b. <i>di-n=em.</i>      |
| I            | Ali=SBJ.1SG  | see.PST    | see.PST-OBJ.2SG=SBJ.1SG |
| 'I saw Ali.' |              |            | 'I saw you.'            |

- *Verb hosts 3sg clitic*

- |                     |                     |                             |
|---------------------|---------------------|-----------------------------|
| c. <i>Det-a</i>     | <i>Ali dit=i.</i>   | d. <i>*Det-a Ali=i dit.</i> |
| girl-DEF            | Ali see.PST=SBJ.3SG |                             |
| 'The girl saw Ali.' |                     |                             |

## 2. A mismatch between present and preterite verb inflection

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A P/N suffix precedes a P/N clitic in any verb form carrying both.  
Thus, present and preterite verb forms in Laki participate in an inflectional mismatch:

Intransitives		Transitives	
Subject agreement	Subject agreement	Pronominal object	Ordering of adjacent P/N markers
Present		V-suffix=clitic	
Preterite		V-suffix=clitic	

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A P/N suffix precedes a P/N clitic in any verb form carrying both. Yet, P/N suffixes and P/N clitics differ in function according to tense.

	Intransitives	Transitives		
	Subject agreement	Subject agreement	Pronominal object	Ordering of adjacent P/N markers
Present	suffix	suffix	vbl clitic	V-suffix=clitic
Preterite	suffix	VP2 clitic	suffix	V-suffix=clitic
	BUT: 3sg: unmarked	3sg: vbl clitic	3sg: unmarked	

## 2. A mismatch between present and preterite verb inflection

Same syntax

subj 1sg, obj 2sg

Different morphology

suffix: 1sg vs 2sg

clitic: 2sg vs 1sg

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*di-m=et*

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‘You saw me.’

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In particular, the status of a P/N specification in syntax is distinct from its status in morphology:

- (i) in syntax, a P/N specification  $\alpha$  may serve as the value of a subject-agreement feature **SBJ** or of a pronominal-object feature **PRNOBJ**;
- (ii) in morphology, a P/N specification  $\alpha$  may serve as the value of an affixally-realized feature **AF** or of an enclitically-realized feature **CL**.

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### The Syntactic Pattern

- a. A finite verb obligatorily inflects for SBJ; it may also inflect for PRNOBJ.
- b. The properties [ SBJ: 3sg ] and [ PRNOBJ:  $\alpha$  ] are invariably **head properties**, shared by a VP with its head V. Otherwise (i.e. where  $\beta \neq 3\text{sg}$ ):
- as a member of a transitive preterite property set, [ SBJ:  $\beta$  ] is a **left-edge property** (Miller 1992, Halpern 1995), shared by a VP with its initial constituent;
  - as a member of other sorts of property sets, [ SBJ:  $\beta$  ] is a **head property**.

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#### **The Morphological Pattern**

A Laki verb's P/N inflection involves two sets of realization rules: set A contains rules realizing values of AF; set B contains rules realizing values of CL.



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#### The Morphological Pattern

A Laki verb's P/N inflection involves two sets of realization rules: set A contains rules realizing values of AF; set B contains rules realizing values of CL.

(A)	$\{\text{AF: 1sg}\} : X \rightarrow Xem$	$\{\text{AF: 1pl}\} : X \rightarrow Ximen$
	$\{\text{AF: 2sg}\} : X \rightarrow Xin$	$\{\text{AF: 2pl}\} : X \rightarrow Xinan$
	$\{\text{prs, AF: 3sg}\} : X \rightarrow Xi$	$\{\text{AF: 3pl}\} : X \rightarrow Xen$
(B)	$\{\text{CL: 1sg}\} : X \rightarrow X=em$	$\{\text{CL: 1pl}\} : X \rightarrow X=man$
	$\{\text{CL: 2sg}\} : X \rightarrow X=et$	$\{\text{CL: 2pl}\} : X \rightarrow X=tan$
	$\{\text{CL: 3sg}\} : X \rightarrow X=i$	$\{\text{CL: 3pl}\} : X \rightarrow X=an$

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#### The Morphological Pattern

If a verb is specified for both AF and CL, the application of the rule realizing the value of AF precedes that of the rule realizing the value of CL.

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	$\{\text{prs, AF: 3sg}\} : X \rightarrow Xi$	$\{\text{AF: 3pl}\} : X \rightarrow Xen$
(B)	$\{\text{CL: 1sg}\} : X \rightarrow X=em$	$\{\text{CL: 1pl}\} : X \rightarrow X=man$
	$\{\text{CL: 2sg}\} : X \rightarrow X=et$	$\{\text{CL: 2pl}\} : X \rightarrow X=tan$
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#### The Morphological Pattern

The rules in (A) apply only to verbs; the rules in (B) apply to clitic hosts of various categories (including verbs).

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	$\{\text{CL: 3sg}\} : X \rightarrow X=i$	$\{\text{CL: 3pl}\} : X \rightarrow X=an$

## 4. The property mapping *pm*

At the interface of syntax with morphology in Laki, a **property mapping *pm*** mediates between the Syntactic Pattern and the Morphological Pattern.

## 4. The property mapping *pm*

Thus, a word form's grammar depends on two distinct property sets (Stump 2016):

- one of these,  $\sigma$ , determines its syntax;
- the other, *pm*( $\sigma$ ), determines its inflectional realization.

## 4. The property mapping *pm*

### Definition:

Where  $\sigma$  is any morphosyntactic property set for verbs  
and  $\alpha$  is any person/number combination:

if $\sigma$ contains	then <i>pm</i> ( $\sigma$ ) instead contains
----------------------	--

---

present, SBJ: $\alpha$	present, AF: $\alpha$
preterite, SBJ: $\alpha$	preterite, CL: $\alpha$
present, PRNOBJ: $\alpha$	present, CL: $\alpha$
preterite, PRNOBJ: $\alpha$	preterite, AF: $\alpha$

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*mown-em=et* 'I see you.'

Syntax:  $\sigma_1 = \{ \text{prs}, [\text{SBJ 1sg}], [\text{PRNOBJ 2sg}] \}$

Morphology:  $pm(\sigma_1) = \{ \text{prs}, [\text{AF 1sg}], [\text{CL 2sg}] \}$   
*-em* *=et*

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Syntax:  $\sigma_2 = \{ \text{pst}, [\text{SBJ 2sg}], [\text{PRNOBJ 1sg}] \}$

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Here, specifications of AF and CL are morphomic, since they have neither syntactic nor semantic coherence: an exponent of AF (or of CL) realizes subject agreement in some instances and properties of a pronominal object in others.

## 5. Conclusion

Laki morphosyntax presents a kind of symmetrical imbalance:

- morphology but not syntax is sensitive to specifications of AF and CL;
- syntax but not morphology is sensitive to specifications of SBJ and OBJ.

The property mapping *pm* constitutes the nontrivial interface between these skewed specifications.

## 5. Conclusion

Cross-linguistically, a wide range of mismatches between the syntax of words and their morphology are the effect of nontrivial property mappings, e.g.

inflection-class distinctions

morphomic realizations of morphosyntactic properties

some kinds of syncretism

deponency

overabundance

polyfunctionality

## References

- Aronoff, Mark. 1994. *Morphology by itself: Stems and inflectional classes*, Cambridge, MA, & London: MIT Press.
- Halpern, Aaron. 1995. On the placement and morphology of clitics. Stanford: CSLI Publications.
- Miller, Philip H. 1992. *Clitics and constituents in Phrase Structure Grammar*. New York: Garland.
- Stump, Gregory. 2016. *Inflectional paradigms: Content and form at the syntax-morphology interface*. Cambridge: Cambridge University Press.
- Taghipour, Sahar. 2017. *Laki verbal inflection*. University of Kentucky MA thesis.

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- Aronoff, Mark. 1994. *Morphology by itself: Stems and inflectional classes*, Cambridge, MA, & London: MIT Press.
- Halpern, Aaron. 1997. *The morphology of clitics*. Stanford: CSLI.
- Miller, Philip H. 1997. *Case Structure*. New York: Garland.
- Stump, Gregory. 2001. *Argument and form at the syntax-morphology interface*. Cambridge: University Press.
- Taghipour, Sahar. 2017. *Laki verbal inflection*. University of Kentucky MA thesis.

Tašakora makam!  
با تشکر از شما!  
Thank you!  
Köszönöm!