

## Transparency-conditioned valency alternations in Heritage Laz

Ömer Eren\*

**Abstract.** The often-noted endangered status of Laz (South Caucasian) spoken in Türkiye (Haznedar et al. 2018) has not been systematically and empirically studied with reference to actual linguistic data produced by younger generation heritage speakers. To fill in this gap and identify the vulnerable aspects of Laz grammar when acquired as a *heritage* language (Polinsky 2018) I carried out one free production task and two grammatically oriented tasks (production via translation; and comprehension via grammaticality judgment task). Focusing on the patterns of valency changing operations in Heritage Laz, this study shows that the significant erosion of the syncretic *i-* marker in Laz provides evidence for its semantically vacuous nature (Eren 2021) rather than a voice marker (Lacroix 2012) or a verbal pronominal (Öztürk & Taylan 2014, 2017; Öztürk 2021). The erosion of this marker is expected given the Interface Hypothesis (Tsimplici & Sorace 2006) along with the Transparency Hypothesis (Aalberse et al. 2019), both of which were previously shown to regulate heritage grammars.

**Keywords.** South Caucasian; heritage speakers; valency change; verbal expletives

**1. Introduction.** Laz is an endangered South Caucasian language spoken in North-eastern Türkiye. The verbal predicate in Laz is highly complex, consisting of 16 slots occupied with markers that also exhibit allomorphy. The main focus is on the distribution of valency markers referred to as pre-root vowels (PRV). The marker *i-* exhibits syncretism as surfacing in unergatives along with different types of valency changing operations.

Three different analyses were previously proposed to account for the syncretism of the *i-* marker. Specifically, it was argued to be i) a voice head (Lacroix 2012), ii) a verbal pronominal (Öztürk & Taylan 2014, 2017; Öztürk 2020), or iii) a verbal expletive (Eren 2021). The relevant theoretical accounts make different predictions regarding the distribution of this marker in Heritage Laz. The aim of this study is to examine these predictions to understand for which of these analyses heritage language data lend support for.

To this end, younger generation heritage speakers of three different Laz varieties (AL: Ardeşen Laz, PL: Pazar Laz, FL: Fındıklı Laz) are contrasted with older generation baseline Laz speakers. A heritage speaker is “ a simultaneous or sequential (successive) bilingual whose weaker language corresponds to the minority language of their society and whose stronger language is the dominant language of that society (Polinsky 2018: 9). In this study, the divide between baseline and heritage speakers is drawn based on monolingual versus heritage bilingual language acquisition up to the age of 7, which marks the start of obligatory education in Turkish.

This study is organized as follows: § 2 presents the distributional facts for the pre-root vowels in baseline Laz, along with a brief overview of the previous theoretical accounts. I turn to the distribution of the relevant markers and the nature of valency alternation in Heritage Laz in § 3. In this section, the predictions of the previous theoretical accounts are checked against heritage speaker data to understand which analysis is on the right track. It is shown that all the

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- (4) Koçi-k            diška            i-tax-am-s.  
 man-erg        wood.abs        prv-break-ipfv-3sg  
 ‘The man is cutting wood for himself.’                    (Benefactive reflexive: *i*-verb-*am*)

Lastly, *i*- marker surfaces high applicative constructions with 1<sup>st</sup> or 2<sup>nd</sup> applied arguments (5a) (Demirok 2013; Öztürk 2016). The applied object bears the benefactive role rather than the subject (c.f. (4)). That the distribution of the pre-root vowel shows sensitivity to the person features in these constructions is evidenced by the use of *u*- with 3<sup>rd</sup> person arguments (5b):

- (5) a. Koçi-k        ma            diška            m-i-tax-am-s.  
 man-erg    I-dat        wood.abs        1obj-appl-break-ipfv-3sg  
 ‘The man is cutting wood for me.’  
 b. Koçi-k        dida-s            diška            u-tax-am-s.  
 man-erg    old woman-dat    wood.abs        appl-break-ipfv-3sg  
 ‘The man is cutting wood the woman.’                    (High Applicatives: *i/u*-verb-*am*)

The distribution of the remaining two pre-root vowels, namely *a*- and *o*-, is quite restricted just like *u*-. (6) shows the use of the *a*- marker in a higher applicative construction, which are syntactically introduced above (agentive) *v*P and specify that the applied argument is the holder or location of the property denoted in the *v*P (Öztürk 2016). Unlike in high applicatives, the pre-root vowel remains invariant regardless of the person features of the applied subject.

- (6) Koçi-s            diška            a-tax-er-n.  
 man-dat        wood.abs        appl-break-ipfv-3sg  
 i. ‘The man was able to cut the wood.’                    (Dynamic Modality)  
 ii. ‘The man unintentionally cut the woods.’                    (Unintentional Causation)

As for causativization (7), the verb is marked with *o*- independently of the person features of the arguments. Unlike applicativization (both high and higher), causativization further involves the addition of the causative suffix. Table (1) summarizes the facts presented thus far.

- (7) Xordza-k        koçi-s        bere            o-bgar-in-am-s.  
 woman-erg    man.dat    child.abs        caus-cry-caus<sub>intr</sub>-caus<sub>tr</sub>-ipfv-3sg  
 ‘The woman is making the man cry.’                    (Causativization: *o*-verb-*in-am*)

Argument Structure	PRV	Template	3 <sup>rd</sup>	Subject
Transitives	<i>Ø</i> -	<i>Ø</i> -verb- <i>um</i>	- <i>s/-y</i>	ERG
Unergatives	<i>i</i> -	<i>i</i> -verb- <i>am</i>	- <i>s/-y</i>	ERG
Unaccusatives	<i>Ø</i> -	<i>Ø</i> -verb- <i>ur</i>	- <i>n</i>	ABS
Passives	<i>i</i> -	<i>i</i> -verb- <i>er</i>	- <i>n</i>	ABS
Affixal (Benefactive) Reflexives	<i>i</i> -	<i>i</i> -verb- <i>am</i>	- <i>s/-y</i>	ERG
(High & Low) Applicativization	<i>i</i> -: 1 <sup>st</sup> & 2 <sup>nd</sup> <i>u</i> -: 3 <sup>rd</sup>	<i>i/u</i> -verb- <i>am</i>	- <i>s/-y</i>	ERG
Higher Applicatives	<i>a</i> -	<i>a</i> -verb- <i>er</i>	- <i>n</i>	DAT
Causativization	<i>o</i> -	<i>o</i> -verb- <i>in/ap-am</i>	- <i>s/-y</i>	ERG

Table 1. Distribution of pre-root vowels and imperfective markers

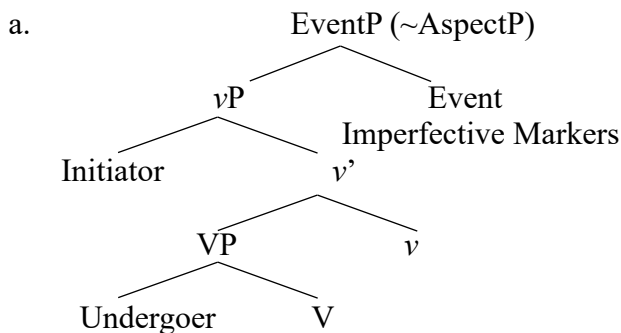
2.2. PREVIOUS THEORETICAL ANALYSES FOR THE SYNCRETIC PRE-ROOT VOWEL *i-*. There are three main theoretical analyses proposed for the syncretic *i-* marker: a) Voice head, b) Verbal pronominal, c) Verbal expletive, which are laid out in the remainder of this section.

2.2.1. ANALYSIS 1: *i-* AS A VOICE HEAD. Based on the Arhavi dialect of Laz, Lacroix (2009, 2012) argues that different functions and uses of *i-* can be subsumed under the middle voice. This argument mainly rests upon the typological account proposed for middles in Kemmer (1993). Kemmer’s scalar approach is based on the claim that the degree of distinguishability of distinct participants rests partly upon valency changing operations such as passive and reflexive and partly on specific lexical domains. Details aside, relying mainly on this generalization, Lacroix simply notes that different uses of *i-* in Laz correspond to and are typically expressed with middle markers in other languages, without providing a theoretical account for the relation between the relevant different morpho-syntactic operations.

2.2.2. ANALYSIS 2: *i-* AS AN ARGUMENT. Öztürk & Taylan (2014, 2017) argue that all eventualities in Laz are syntactically mapped into a transitive syntax. There are no genuinely intransitive verbs in Laz, i.e., neither unergatives nor unaccusatives. This analysis mainly relies on the argument that *i-* is an argument rather than a voice head (c.f. Lacroix 2009, 2012). *i-* does not surface in transitive constructions but does occur in unergatives along with unaccusative constructions formed with the imperfective marker *-er*. For unergatives, Öztürk & Taylan argue that *i-* occupies the direct object position. The transitive syntax proposed for unergatives is an extension of the role performed by *i-* in (direct object) reflexives. Based on the mutual exclusivity of *i-* with the (Turkish loan) reflexive pronoun *çendi*, Öztürk & Taylan argue that *i-* saturates the object position and is co-indexed with the ergative marked subject. As for unaccusative patterns, these constructions are argued to underlyingly involve a transitive syntax, with a syntactically projected external and internal argument position. Specifically, these constructions are of two types under this analysis: i) The imperfective morpheme *-er* surfaces in the presence of an active impersonal voice where *i-* necessarily saturates the external argument position, ii) The imperfective marker *-ur* surfaces in the presence of an undergoer voice, which highlights the inherent/intrinsic property or natural state of the internal argument.

For the second type of unaccusative constructions, Öztürk & Taylan argue that these constructions also underlyingly have a transitive structure with a syntactically active external and internal argument position, the latter of which is filled with the apparent/surface subject DPs in the relevant clauses. Their analysis can be summarized as in (8).

(8) Structure of eventualities in Laz (Öztürk & Taylan 2017)



b. Transitives:	[DP-erg	[DP V]]	v: Initiator
c. Unergatives/Direct object reflexives:	[DP-erg j	[ i-j V ]]	vP: Initiator
d. Active impersonals (=Passives)	[i-	[DP V]]	vP: Active Impersonal
e. Unaccusatives	[Ø	[DP V]]	vP: Undergoer

Despite being cross-linguistically intriguing and theoretically compelling, the proposed uniform structure is not unproblematic. Firstly, it falls short of accounting for the differences between the two types of unaccusatives with respect to the presence of *i-*. It is obligatorily used in active impersonals, saturating the external argument position, while it is obligatorily absent in the other and its presence leads to ungrammaticality (9):

- (9) Nteli (\*i-)ndruk-u(r)-n.  
 metal.abs prv-bend-ipfv-3sg  
 ‘The metal is bending.’ (Unaccusatives)

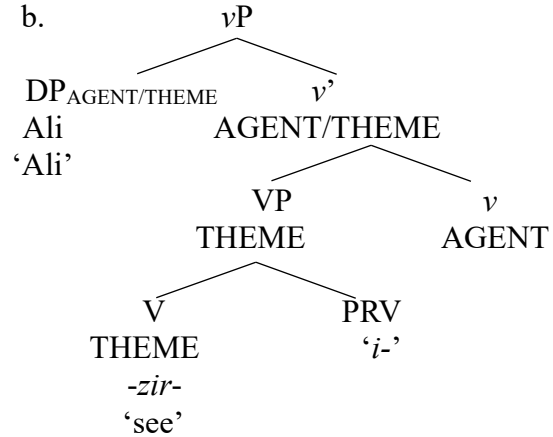
Secondly, Öztürk & Taylan argue that *i-* stands for the reflexive undergoer that is co-indexed with the initiator in the (apparent) unergative constructions. In active impersonals, the same marker is argued to saturate the external argument position and act as a licenser or a potential full pronominal anaphor in the undergoer position. Remaining agnostic about its exact nature (featural composition), they do not make it clear i) how the same pronominal element acts as the target and licenser of syntactic binding, and ii) how the impersonal interpretation arises in active impersonals, i.e., what is the semantic contribution of *i-*? In a later work, Öztürk (2021) argues that *i-* is a referential pronominal clitic referring to humans and thus it can antecede reflexive anaphors in Laz. If on the right track, the question is how *i-* receives a co-referential interpretation with the external argument in unergatives and (direct object) reflexives overriding the proposed obligatory generic human interpretation.

2.2.3. ANALYSIS 3: *I-* AS A VERBAL EXPLETIVE. Building on Öztürk & Taylan (2014, 2017) and Öztürk (2021), I argue in Eren (2021) for a uniform analysis for the syncretism and interpretation of *i-*. Challenging the non-uniform analysis previously proposed for its interpretation, I argue that *i-* is an expletive that saturates certain argument positions only syntactically but crucially not semantically. Disputing Lacroix’s voice head analysis, I also show how the semantically vacuous nature of *i-* appears to result in valency decrease by virtue of occupying argument positions but actually it is not a voice head.

The first context in which the syncretic *i-* marker surfaces is (direct object) reflexives along with unergatives in Laz. Building on the structure proposed in Öztürk & Taylan (2014, 2017), I argue that *i-* occupies the internal argument position, and thanks to its presence the subject is consistently marked with ergative case as in transitives. However, contrary to the previous analyses, the reflexive interpretation does not arise as a result of syntactic binding, i.e., co-indexation between the external argument and *i-*. Instead, it readily follows from how its semantically vacuous nature as an expletive leads the semantic derivation to proceed, based on the analysis proposed in Wood (2015) respectively for the reflexives in Icelandic.

Let us now see the specifics regarding how the apparent co-referential interpretation arises in (direct object) reflexives. As an expletive, the semantic denotation of *i-* is an identity function, which simply identifies the denotation of its sister with the denotation of its mother node. In (direct object) reflexives, *i-* occupies the internal argument position as in (10b). (11) demonstrates how the semantic derivation proceeds and gives rise to the reflexive interpretation associated with these constructions:

- (10) a. Ali-k i-zir-u.  
 Ali-erg eprv-see-pst.3sg  
 ‘Ali saw himself.’



(11) Semantic derivation of (direct object) reflexives

- a.  $[[V]] \leftrightarrow \lambda y_e. \lambda e_s. \text{see}(y, e)$   
 b.  $[[PRV]] \leftrightarrow \lambda P.P$   
 c.  $[[VP]] \leftrightarrow \lambda y_e. \lambda e_s. \text{see}(y, e) \rightarrow$  (c) comes from (a) and (b) via Function Application  
 d.  $[[v]] \leftrightarrow \lambda x_e. \lambda e_s. \text{AGENT}(x, e)$   
 e.  $[[v']] \leftrightarrow \lambda x_e. \lambda e_s. \text{AGENT}(x, e) \wedge \text{see}(x, e)$   
 (e) comes from (c) and (d) via Predicate Conjunction  
 f.  $[[vP]] \leftrightarrow \lambda e_s. \text{AGENT}(\text{Ali}, e) \wedge \text{see}(\text{Ali}, e)$

The lexical verb ‘see’ is an open predicate of type  $\langle e, \langle s, t \rangle \rangle$ , which needs to combine with an argument that would semantically saturate its Theme theta role. Being an identity function, *i-* only syntactically saturates the requirements of this predicate, but semantically, it only copies the denotation of the lexical word and map it to their mother node, viz., VP. Being an unsaturated predicate, the VP combines with the little *v* head, which introduces the AGENT theta role, via Predicate Conjunction because both are of the same type, namely  $\langle e, \langle s, t \rangle \rangle$  (11e). Crucially, the application of Predicate Conjunction gives rise to a reflexive interpretation because the (semantic) arguments of both the little *v* and VP are bound by the same variable (as represented with the same argument *x* in (11e)). Thanks to this, when the external argument (of type *e*) is introduced in the specifier position of *vP*, this argument gets to be interpreted as both the theme and agent of the event. Because of the semantically vacuous nature of *i-*, the theme theta role gets passed up on the tree and ends up being saturated by the same argument as the agent theta role, yielding the co-referential interpretation. As for the unaccusative constructions featuring *i-*, I argue that they constitute instances of passivization, rather than active impersonals (c.f. Öztürk & Taylan (2014, 2017), Öztürk (2021)) and extend the verbal expletive analysis to these constructions and show the derivation of the unaccusative constructions in Eren (2021).

### 3. Pre-root vowels and valency alternation in Heritage Laz.

3.1. PREDICTIONS & METHODOLOGY. The four valency-related operations in Laz, namely i) reflexivization, ii) impersonal passivization (Lacroix 2009, Eren 2021 c.f. Öztürk & Taylan 2017), iii) applicativization, and iv) causativization, all have morphological reflexes in both nominal and verbal domain. Given their problems with morphology (Polinsky 2018: 240), all these operations are predicted to pose challenges to heritage speakers, and thus be subject to erosion. Heritage speakers of Laz are predicted to prefer and/or produce more analytical constructions over synthetic ones if available, based on the crosslinguistic observation for the

preference of heritage speakers for transparency, leading to an increase in analyticity (Polinsky 2018). This is framed under the *Transparency Hypothesis*, which posits that “One-to-one form meaning mappings are easiest both to acquire and to retain.” (Aalberse et al. 2019: 153).

The existent theoretical analyses differ with respect to the operations featuring the *i-* marker. Reflexivization and passivization are valency decreasing operations under Lacroix’s middle analysis, while the apparent valency decrease is only spurious under analyses where *i-* is treated as an argument (Öztürk & Taylan 2017; Eren 2021): *i-* saturates the argumental positions and leads the structure to remain transitive. Thus, only the former analysis directly leads to a prediction that two types of valency alternations (as increase vs. decrease) might be differentially affected. Lastly, one (so-called) valency decreasing operation, namely *reflexivization*, would be more subject to erosion than valency increasing operations as the former but not the latter leads to a multiple mapping between arguments and theta roles, and a violation of transparency.

The relevant analyses proposed for the *i-* marker make different predictions regarding the distribution of the pre-root vowel *i-* in Heritage Laz. The uniform accounts proposed by Lacroix (middle voice head) and Eren (verbal expletive) predict that it would be affected uniformly in all constructions where it occurs; a prediction that does not follow from Öztürk & Taylan’s and Öztürk’s analysis. Furthermore, heritage speakers’ preference for transparency (Polinsky 2018) makes it possible for us to further check which of the previously proposed analyses is on the right track. Eren’s analysis predicts that *i-* is subject to erosion. By virtue of being an expletive, it leads to a syntax-semantics mismatch as a marker having a form yet lacking a (referential) meaning, leading to an apparent violation of the Transparency and the Interface Hypothesis, which posits that interface phenomena “pose processing problems and thus are more vulnerable than aspects of the language that operate within one module.” (Aalberse et al. 2019: 151). To understand if, and if so, which of the predictions are borne out, I carried out two grammatically-oriented tasks with a subset of the same group of speakers who completed the free narrative task, which required the free narration of *Frog, where are you?* (Mayer 1969). A total of 47 participants participated in this study, as in Table 2.

Variables		Baseline (N=26)		Heritage (N=21)	
		#	%	#	%
Gender	Male	21	80.7	11	52.4
	Female	5	19.3	10	47.6
Hometown	Ardeşen	7	26.9	7	33.2
	Fındıklı	4	15.4	3	14.3
	Pazar	5	19.3	2	9.6
	Çamlıhemşin	10	38.4	9	42.9
Age	>20	-	-	2	9.6
	21-30	-	-	10	47.5
	31-40	4	15.4	9	42.9
	41-50	12	46.2	-	-
	51-60	4	15.4	-	-
	60<	6	23	-	-

Table 2. Demographics of the participants completing the grammatically-oriented tasks

The proficiency level of heritage speakers was measured based on the number of distinct content words produced in the free narrative task, rather than self-proficiency reports, based on the high correlations between content word number and grammatical variables such as spatial prefixes, complex clauses etc. (Eren 2023b). Based on this, 7 high-, 9 mid-, and 5 low-proficiency speakers were identified and participated in this study, giving us a total of 21 heritage speakers.

The production task was a translation task. Participants were given certain sentences in Turkish and asked to translate them into Laz. The test items involved a set of sentences with i) transitive roots, ii) unergatives, and iii) unaccusatives, and iv) psych-verbs which necessarily occur in applicative constructions, with a total of 15 verbs<sup>1</sup>. After constructing simple (in)transitive sentences, participants were asked to translate sentences that involve different sorts of valency alternating operations compatible with the relevant predicates.

The comprehension task was conducted after the completion of the production task. Participants were given a set of sentences in Laz and asked to rate a set of Laz sentences on a Likert scale (0: Totally Unacceptable-5: Totally Acceptable) if time permitted, and if not, they were asked to note simply grammatical or ungrammatical. The test items involved synthetic and analytical constructions involving valency alternations. The unacceptable cases were accompanied with grammatical sentences of the same sort, albeit lower in number, to prevent any biases for showing a tendency to underrate all the test items.

3.2. RESULTS OF FREE PRODUCTION TASK<sup>2</sup>. A productive instance of (high) applicatives in Laz is possessor applicatives, which mostly involve relational nouns like body part or kinship terms (Öztürk 2016). The Frog Story yielded many instances of these constructions (12). However, such constructions are mostly attested in the baseline variety while heritage speakers drop the applicative marker (13).

(12) Mtuysi ko-gama-xt-u, bere çxindi n-u-xvat-tu.  
 mouse.abs aff-sp-move-pst.3sg child nose.abs sp-appl-bite-pst.3sg  
 ‘A mouse came out (of the hole) and bit the boy’s nose.’ (Baseline: AL)

(13) \* Sincabi ko-gamaxtu bere çxindi o-şkom-u.  
 squirrel.abs. aff-sp-move-pst.3sg child nose.abs prv-eat-pst.3sg  
 Int: ‘A squirrel came out (of the hole) and ate the boy’s nose.’ (Heritage: AL)

The Frog Story also was fruitful in yielding higher applicative constructions (14). Crucially, the production of these constructions was quite limited in the heritage group. Heritage speakers tended either to fully avoid the relevant cases, or to go for alternative ways of expressing the same scene with simpler grammatical constructions as exemplified in (15):

(14) Laçi kavanozi kafa ko-dolv-a-ğ-u.  
 dog.abs jar.abs head.abs aff-sp-appl-bring-pst.3sg  
 ‘The dog unintentionally put his head inside the jar.’ (Baseline: AL)

(15) Laç’i-ti ti-muşı k’avanozi-şi doloxe k-ama-xt’-u.  
 dog-as for head-3sg.poss jar-gen inside.all aff-sp-move-pst.3sg  
 ‘As for the dog, his head went into/entered the jar.’ (Heritage: AL)

<sup>1</sup> *oziru* ‘see’, *otaxu* ‘break’, *otoru* ‘to drag’, *olimbu* ‘love’, *oçopu* ‘catch’, *oşkomu* ‘eat’, *oxvatu* ‘bite’, *olva* ‘go’, *obgaru* ‘cry’, *ondrukhu* ‘bend (intr)’, *ondrikhu* ‘bend (tr)’, *gontzu* ‘open’, *ogzalu* ‘walk’, *ozu* ‘smash’, *doguru* ‘hear’

<sup>2</sup> See Eren (2023b) for the results of the statistical analyses for other grammatical phenomena such as complex clause formation, spatial prefixation, code-switching, and pro-drop frequencies.

The free narratives also involved cases of passivization and reflexivization. Albeit low in number, these constructions were mostly produced by baseline speakers, while their production was quite low in the heritage group, pointing to the erosion of these constructions. Figure (1) shows the mean production rates of each relevant construction:

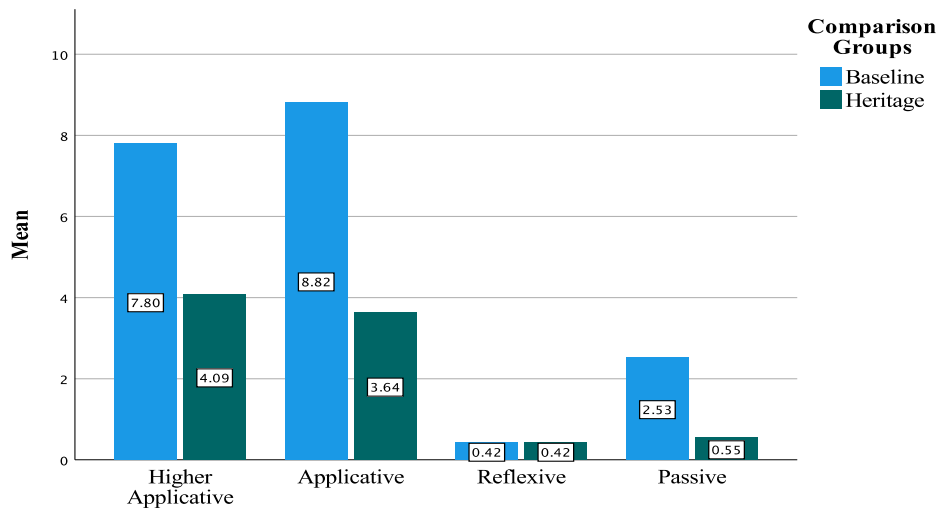


Figure 1. Distribution of constructions involving valency alternations

The results support the hypothesis that valency alternations might be subject to erosion in the heritage variety due to being morphologically marked in the verbal complex, especially in the prefixal domain. The baseline group outperformed the heritage group in all constructions, except for reflexives, where the mean distributions of the two groups turned out to be surprisingly identical. This could be because the only reflexive constructions depicted in the Frog Story is limited to very canonical cases such as getting ready and/or waking up.

In order to eliminate any potential effects of length on the statistical analyses, I compared two groups both in terms of the total number of valency alternations (=valency change-total) and with respect to the ratio of this to the total number of finite verbs they produced, i.e., rate of valency changing operations. This latter measure would give us an idea about the extent to which each speaker would show a tendency to produce these constructions depending also on the overall length of their performance. The statistical analysis (valency change-total ( $t(71)=5.28$ ,  $p<.001$ )) and rate of valency changing operations ( $t(71)=3.007$ ,  $p=.002$ )) gave us a significant difference (alpha level .005): Baseline group produced significantly more constructions than heritage speakers (valency change-total  $M=4.24>2.60$ , rate of valency changing operations  $M=.1688>.1192$ ).

3.3. RESULTS OF GRAMMATICALLY ORIENTED TASKS. The most robust finding regarding the divergences between heritage and baseline speakers concerns the distribution of *i-* and its interaction with the (apparent) valency alternating operations. The production of the reflexive and passive constructions featuring *i-* is quite low in the heritage group. For (affixal) reflexive constructions it was almost close to zero in the low-proficiency group, and quite limited in mid-proficiency speakers, while high-proficiency speakers were more adept at them, patterning with baseline speakers to a great extent. Lower proficiency heritage speakers produced more analytical constructions when asked to translate the corresponding Turkish sentences with reflexive interpretations into Laz. They made use of (overt) pronominals in order to derive

reflexive interpretations as shown in (16) and (17). Due to space restrictions, the findings for the baseline and different proficiency-level heritage speakers are presented together in this section.

(16) Direct object reflexives

- a. Pronominal construction=Heritage (all groups)/Baseline (higher frequency in all)  
 Xordza-k ekrani-s ti-muşı zir-am-s. (c.f. baseline zir-um)  
 woman-erg screen-dat self-3sg.poss see/find-ipfv-3sg  
 ‘The woman {is seeing/sees} herself in the screen.’
- b. Synthetic construction=Baseline/High-prof. Heritage (lower in frequency in both)  
 Xordza-k ekrani-s i-zir-am-s.  
 woman-erg screen-dat prv-see/find-ipfv-3sg  
 ‘The woman {is seeing/sees} herself in the screen.’

(17) Benefactive reflexives

- a. Pronominal construction=Low- & Mid-proficiency Heritage speakers  
 Xordza-k çendi/ti-muşı şeni diška tax-um-s.  
 woman-erg. self(>Turkish)/self-3sg.poss for wood.abs break-ipfv-3sg  
 ‘The woman is cutting woods for herself.’
- b. Synthetic construction: Baseline/High-proficiency Heritage  
 Xordza-k (çendi/ti-muşı şeni) diška i-tax-am-s.  
 woman-erg self(>Turkish)/self-3sg.poss for wood.abs prv-break-ipfv-3sg  
 ‘The woman is cutting woods for herself.’

As for passives, heritage speakers resorted to more analytical and transparent transitive constructions with either overt indefinite (3<sup>rd</sup> singular) pronouns or ((c)overt) 3<sup>rd</sup> person plural pronouns occupying the subject position but yielding a generic or indefinite reading (18):

(18) Passive constructions

- a. Analytical construction-Type 1: Heritage (all )/Baseline (higher freq. in heritage)  
 (Hini-k) kalati tor-um-an.  
 they-erg basket.abs carry-ipfv-3pl  
 ‘The bag is (being) carried.’ (Lit: They are carrying the/a bag.)
- b. Analytical construction-Type 2: Heritage (all)/Baseline (higher freq. in heritage)  
 Mitxa-k kalati tor-um-s.  
 someone-erg basket.abs carry-ipfv-3sg  
 ‘The bag is (being) carried.’ (Lit: Somebody is carrying the/a bag.)
- c. Synthetic construction= Baseline/High-proficiency Heritage  
 Kalati i-tor-e(r)-n.  
 basket.abs prv-carry-ipfv-3sg  
 ‘The bag is (being) carried.’

The facts regarding the production of the relevant constructions indicate the following: i) The production of *i-* in establishing subject-object co-reference is the lowest in all groups, crucially involving the baseline speakers. All speakers of Laz show a tendency to establish direct-object-subject coreference via overt pronominals, corroborating the preliminary findings based on a more limited number of baseline speakers in Eren (2023a). The erosion of this construction therefore seems to involve the amplification of an incipient trend in the baseline variety. Note that the preference for overt nominals in reflexives is in line with the decreased preference of

heritage speakers for null arguments or pro-drop across sentence boundaries (Eren 2023b) along with the *Silent Problem* reported in the literature (Polinsky & Scontras 2020) ii) The erosion in direct object reflexives does not directly extend into benefactive reflexives, where the subject is interpreted to be co-referential with the applied argument, because baseline and high-proficiency heritage speakers are more proficient in these constructions. Lower proficiency heritage speakers drop the applicative marker and make use of a simple transitive construction with a postpositional phrase bearing benefactive interpretation (17a). iii) Like benefactive reflexives, baseline and high-proficiency heritage speakers are quite proficient in deriving (overt) external argumentless (passive) constructions. However, while the latter show a higher tendency to produce alternative analytical constructions with indefinite or generic subjects, patterning alike with the lower proficiency heritage speakers, the first produced and preferred pattern of baseline speakers is the synthetic construction featuring *i-*. Lastly, the production of synthetic constructions was quite low by the lower proficiency heritage speakers.

The significant erosion observed in the production of (direct object) reflexives and passives is in line with the predictions of the uniform analyses proposed for the *i-* by Lacroix (2009, 2012) and Eren (2021). This is in contrast to the analysis of Öztürk & Taylan (2017) and Öztürk (2021), who argue that *i-* is an anaphoric pronominal in reflexive constructions and also treated as an (impersonal) pronominal bearing a generic human interpretation in external argument-less constructions. Under this non-uniform analysis, it becomes harder to account for the concurrent (decaying) fate of both of the (apparently) different constructions in a similar manner in the heritage variety. Likewise, the middle voice head analysis would also not directly make any predictions about the erosion of the *i-* marker as it would be associated with a meaning of a (different) valency-decreasing voice head. However, the verbal expletive analysis correctly predicts the erosion of *i-*. As an expletive, this marker has a (morpho-phonological) exponence, i.e., a form, but crucially not a referential meaning. Given the prevalence of transparency in heritage grammars (Polinsky 2018), this form is uniformly predicted to be subject to loss as it leads to a violation of one-to-one mapping between form and meaning, i.e., Transparency Hypothesis, and thus create a syntax-semantics mismatch, which is in line with the predictions of the Interface Hypothesis.

As for derived transitive constructions, the divergence between heritage and baseline speakers turns out to decrease to a great extent as opposed to reflexives and passives. Regarding applicative constructions, low- and mid-proficiency groups showed a tendency to (additionally) produce analytical applicative constructions where the benefactive reading is provided in a postpositional construction as shown in (19a). All speaker groups, involving lower proficiency heritage speakers, seemed proficient almost to the same extent in the production of the affixal construction (19b). The only difference was that the lower proficiency speakers showed a greater tendency to include the postpositional phrase in addition to the applicative marked verbal predicate, possibly to make the sentence maximally explicit and clear interpretation-wise.

#### (19) High applicative constructions

- a. Pronominal construction=Low- & Mid-proficiency Heritage speakers  
 Xordza-k      himu      şeni      dişka      tax-um-s.  
 woman-erg    him.abs    for      wood.abs    break-ipfv-3sg  
 ‘The woman {is cutting/cuts} woods for me/him.’

- b. Synthetic construction with the pre-root vowel *u-*: Baseline/Heritage (all groups)
- |           |         |          |                     |
|-----------|---------|----------|---------------------|
| Xordza-k  | himu-s  | dişka    | u-tax-am-s.         |
| woman-erg | him-dat | wood.abs | appl-break-ipfv-3sg |
- ‘The woman {is cutting/cuts} woods for him.’

Maintenance of the high applicative constructions with the *u-* marker in (19b) stands in contrast with those cases where the pre-root vowel is *i-* with 1<sup>st</sup> or 2<sup>nd</sup> person applied arguments. Precisely, especially the low-proficiency heritage groups showed a greater tendency to express those constructions in an analytical construction. The lower rate of maintenance is similar to the benefactive reflexives where the same group of speakers prefer analytical constructions (20).

(20) High applicative constructions

- a. Pronominal construction=Low- proficiency heritage speakers
- |           |                |      |          |                |
|-----------|----------------|------|----------|----------------|
| Xordza-k  | şkimi/skani    | şeni | dişka    | tax-um-s.      |
| woman-erg | me.abs/you.abs | for  | wood.abs | break-ipfv-3sg |
- ‘The woman {is cutting/cuts} woods for me/him.’
- b. Synthetic construction with *i-*: Baseline/High-&mid-proficiency Heritage
- |           |                      |          |                            |
|-----------|----------------------|----------|----------------------------|
| Xordza-k. | ma/si/bere-s         | dişka    | m/g-i-tax-am-s.            |
| woman-erg | me/you.abs/child-dat | wood.abs | 1/2obj-appl-break-ipfv-3sg |
- ‘The woman {is cutting/cuts} woods for me/you.’

Although none of the previous theoretical accounts for *i-* has extended to high applicative constructions with overt applied arguments, the parallelisms between the relevant constructions point to the fact that *i-* might be differentially affected in the heritage variety in all constructions in which it occurs. As for higher applicative constructions established with the pre-root vowel *a-* (21), they turn out to be more resilient in comparison with the other markers discussed so far. Crucially, heritage speakers of all proficiency levels were quite proficient in these constructions, which are argued to be based on (impersonal) constructions (bearing *-er*) with the object agreement markers cross-referencing the (experiencer) subject (Öztürk 2016: 12). Therefore, we expect these constructions to be subject to erosion. As a matter of fact, the production of these constructions (along with high applicatives) was found to be quite lower in the heritage group. The facts reported here regarding the better maintenance of the higher applicatives rely on a very limited set of high-frequency verbs, such as canonical psych-verbs like *love*, *hear*, *see* etc., and additionally a translation task rather than a free narrative one. Therefore, these findings need to be checked against further data, which I leave to future studies.

(21) Higher Applicative Constructions: Baseline/Heritage (all groups)

- a. Dynamic modality/ Unintentional causation
- |                     |          |                              |
|---------------------|----------|------------------------------|
| Ma/Si/ Xordza-s     | dişka    | m/g/Ø-a-tax-e(r)-n.          |
| I/you.dat/woman-dat | wood.abs | 1/2/3obj-appl-break-ipfv-3sg |
- i. ‘I/You/The woman {am/is/are} able to cut woods.’
- ii. ‘I/You/The woman {am/is/are} unintentionally cutting the woods.’
- b. Psych-predicates and verbs of perception with experiencer subjects
- |                     |         |                                        |
|---------------------|---------|----------------------------------------|
| Ma/Si/ Xordza-s     | layçi   | m/g/Ø-a-limb-e(r)-n.                   |
| I/you.dat/woman-dat | dog.abs | 1/2/3obj-appl-hear/understand-ipfv-3sg |
- ‘I/You/The woman love(s) the dog.’

As far as valency increasing operations are concerned, the most striking and resilient construction turns out to be causativization (template: [*o-verb-in/ap-am*]). Leaving aside certain cases of overmarking, i.e., doubly marked causatives prevalent especially in low- and mid-proficiency heritage groups (22a), all groups of heritage speakers were most proficient in forming causatives. As for agreement, except for certain low-proficiency speakers, heritage speakers were surprisingly proficient in establishing the cross-reference between the causee object and the verb:

(22) Causativization: Baseline (except for overmarking)/Heritage (all groups)

- a. Xordza-k                    ma/si/bere-s                    çxomi  
 woman-erg                    me/you.dat/child-dat                    fish.abs  
 m/g/ Ø-o-çop-(*\*in*)-ap-am-s.  
 1/2/3obj-caus-catch-caus<sub>intr</sub>-caus<sub>tr</sub>-ipfv-3sg  
 ‘The woman {is making/makes} {the boy/me/you} catch fish.’
- b. Xordza-k                    koçi                    o-ğur-in-am-s.  
 woman-erg                    man.abs                    caus-die-caus<sub>intr</sub>-ipfv-3sg  
 ‘The woman killed the man.’ Lit: ‘The woman {is making/makes} the man die.’

The results of the production task regarding valency alternating operations indicate that heritage speakers do better with valency increasing operations while they have problems forming the (apparent) synthetic valency decreasing operations. Instead, they resort to analytical constructions. The relevant synthetic operations can be ordered as in (23) according to their level of resilience and maintenance in Heritage Laz:

(23) Degrees of resilience of valency alternations in Heritage Laz

*Causativization with o->Higher applicativization with a->High applicatives with -u>High applicatives with i->Benefactive Reflexives with i->Passivization>Direct object reflexives with i-*

The first crucial fact concerns the higher resilience of valency increasing operations in comparison to the (apparent) valency decreasing ones, i.e., causativization and high(er) applicativization vs. reflexivization and passivization. While there is a distinct overt argument introduced into the structure in the former type of operations, this is not the case in the latter. Given heritage speakers’ preference for one-to-one mapping between form and meaning, the presence of a distinct argument bears great significance on the distribution of the theta roles on a one-to-one basis and thus it can account for the differential resilience of the relevant constructions in the heritage variety. Precisely, the argument introduced in the valency increasing operations (in the specifier of the relevant voice heads, *vP* and High(er) ApplicativeP) receives the causer and benefactive/maiefactive or experiencer theta role respectively. In reflexives and passives, there is a mismatch between the number of arguments and that of theta roles. In the former, the same argument (subject) bears two theta roles, i.e., Agent-Patient/Theme in direct object reflexives, and Agent-Benefactive in benefactive reflexives. In passivization, although there is an implied agent, Agent role is not directly mapped onto an overt argument as reintroduction of implied agent in an adjunct *by*-clause is not licensed in Laz. Note that the relevant constructions are passives, but not impersonals (or active impersonals as in Estonian as argued by Öztürk & Taylan 2017) as generic reflexive pronouns are not bound and they do not receive an obligatory human interpretation (see Eren 2021: 196). The question as to whether

these constructions are *active existential* as in Lithuanian (Šereikaite 2021) as pointed out to me by an anonymous reviewer requires further investigation.

Unlike the argumental analyses of *i-*, where no valency decrease is assumed thanks to the presence of this marker, Lacroix's middle voice head analysis might more easily account for the discrepancy between valency increasing and decreasing operations as such a distinction is more readily drawn. Nevertheless, this analysis would need to posit a homophonous *i-* marker for valency increasing cases which is distinct from the *i-* marker in reflexive constructions. Although the same allomorphs could also appear in the causative and the passive in languages like Korean (Kim 2011) as pointed out by an anonymous reviewer, Lacroix's analysis cannot readily account for the case-related Laz facts (the systematic occurrence of ergative case in direct object reflexives, unergatives and transitives). Lastly, a formal analysis is not offered for the proposed middle voice head in Lacroix's study.

Turning to the occurrence of *i-* in applicatives and benefactive reflexives, although benefactive reflexives also involve high applicativization, the differential affectedness of high applicatives with overt arguments vs. benefactive reflexives again seems to follow from the difference in the mapping of theta roles to arguments. While benefactive theta role is mapped onto the same argument in benefactive reflexives, yielding the reflexive interpretation, in canonical high applicative constructions it is mapped to a distinct argument, namely, the applied argument. This one-to-one mapping available in only in the high applicative construction seems to have resulted in better preservation.

As for the discrepancy between *u-* and *i-* within the canonical high applicatives, it is not related with only the differences in the agreement markers given the resilience of the relevant markers in higher applicatives and causatives. The discrepancy can again be attributed to the Transparency Hypothesis (Aalberse et al. 2019: 151). While *i-* is associated with more than one type of arguments or feature, namely 1<sup>st</sup> and 2<sup>nd</sup> person (in the baseline variety), *u-* is with only one type of argument, i.e., 3<sup>rd</sup> person. Note that Lacroix's (middle) voice head would fall short of accounting for the relevant discrepancy as both markers would have the same status, namely simply a voice head. Lastly, one would expect a similar maintenance for the high applicative *u-* and the higher applicative *a-* as pointed out by an anonymous reviewer. The higher resilience of the latter marker could be due to its obligatory use with very frequently used verbs in the database of the current study and thus it needs to be further investigated as mentioned before.

Importantly, note that the differential trajectory of change associated with the relevant valency operations and the pre-root vowels discussed thus far is only valid for the production of the relevant constructions. In terms of their comprehension, heritage speakers turned out to be quite competent in almost all (synthetic) constructions and operations, patterning almost totally with baseline speakers. This finding is expected given that cross-linguistically heritage speakers' comprehension skills tend to be better than their production skills (Polinsky 2018: 86).

**4. Conclusion.** The examination of valency changing operations and their effects on the distribution of the pre-root vowels in Laz shows that Heritage Laz speakers prefer a more even distribution of theta roles and thus more transparent constructions. The differential maintenance of the syncretic *i-* marker lends further support for the difficulty that interface phenomena is argued to pose to heritage speakers (Tsimplici & Sorace 2006; Aalberse et al. 2019: 151). Data from heritage speakers also allowed us to check the predictions of the different theoretical accounts proposed to account for the syncretism of the *i-* marker. Specifically, while the verbal expletive marker analysis better accounts for the distribution of this marker in Heritage Laz as it is shown to lead to a syntax-semantics mismatch, and thus a violation of transparency.

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