Present indicative auxiliaries in Zamudio: An Appendix to 'Obliteration vs. Impoverishment in the Basque g-/z- Constraint'

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1   Introduction

This paper is an appendix to Arregi and Nevins (2006). We provide here a full analysis of the morphology of present indicative auxiliary verbs in Zamudio Basque, a Bizkaian dialect that is representative of the ones we discuss in that paper.[1] The data are from Gaminde (2000).

In each tense, Basque auxiliaries are traditionally presented in four separate paradigms, each corresponding to auxiliaries containing different sets of agreement morphemes: (i) absolutive only (intransitive), (ii) absolutive and dative (psych-verb), (iii) absolutive and ergative (transitive), and (iv) absolutive, dative, and ergative (ditransitive). The paradigms for the present indicative in Zamudio are in tables 1–5.[2] These are the forms obtained after vocabulary insertion. Several readjustment and phonological rules modify them further, as discussed in section 4 below.

The underlined forms are subject to the g-/z- constraint and are discussed in the paper. As shown in tables 2 and 5, absolutive agreement must be third person if dative agreement is present, due to the *me-lui* constraint, which is operative throughout Basque.[3] The other gaps in the paradigms are signaled with the letter 'X', and are due to two different reasons. First, there are no reflexive forms (1st with 1st, 2nd with 2nd) in any paradigm in any Basque dialect. Second, many of the forms for 2nd person singular colloquial are missing in Gaminde (2000). As in many dialects, the colloquial-formal distinction is being lost in favor of the formal forms.[4]

The forms in these tables follow this template:

(1)   Slots in the auxiliary:
         Abs—**Root**—2Pl.Abs—**Dat**—**Erg**—Pl.Abs

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[1]We leave the analysis of other forms for future work. Apart from the realization of tense in the auxiliary (which is $\emptyset$ in the present indicative), the main differences between the present indicative and other tenses have to do with tense-related allomorphy in the root and in third person absolutive agreement. Other tenses also have ergative displacement (Laka 1993, Rezac 2003), and taking this phenomenon into account would take us far beyond the scope of Arregi and Nevins 2006.

[2]We use the follwoing abbreviations in the tables: A: absolutive; COLL: colloquial; D: dative; E: ergative; F: feminine; FOR: formal; M: masculine; P: plural; S: singular.

[3]Although forms violating *me-lui* are not possible in any transitive sentence throughout Basque, this constraint seems not to be active in intransitive sentences in some dialects. In Zamudio, older speakers have some intransitive forms that violate the constraint, although limited to first singular absolutive (see Gaminde 2000.) We have omitted these forms from table 2, since younger speakers do not use them.

[4]In the tables, we have completely omitted columns for 2nd person singular colloquial, since all the relevant forms are missing.

Abs	
1s	n-as
2s.COLL	g-as
1p	g-ara
2s.FOR	s-ara
2p	s-ara-e
3s	d-a
3p	d-ire

Table 1: Absolutive auxiliary

Dat↓ Abs→	3s	3p
1s	d-a-t	d-a-t-s
1p	d-a-ku	d-a-ku-s
2s.M.COLL	d-a-k	d-a-s-k
2s.F.COLL	d-a-na	d-a-s-na
2s.FOR	d-a-tzu	d-a-tzu-s
2p	d-a-tzu-e	d-a-tzu-e-s
3s	d-a-ko	d-a-ko-s
3p	d-a-ko-e	d-a-ko-e-s

Table 2: Absolutive-dative auxiliary

In the following sections, we account for the realization of all these slots except for the special plural absolutive morphemes 2Pl.Abs and Pl.Abs. 2Pl.Abs is realized as *-e*, and always appears right-adjacent to the root. Pl.Abs is realized as *-s*, and its distribution within the verb is somewhat idiosyncratic. In particular, it is absent in all the Pl.Abs forms in table 1, in the 1Pl.Abs-3Erg forms *g-aitu-(e)*, and in all the 2Pl.Abs forms (*s-aitu-e-*) in table 3, while it is present in the 2Sg.Form-3Sg.Erg form *s-aitu-∅-s* in the same table, even though the absolutive morpheme in this verb is not plural. Furthermore, its position is also idiosyncratic in some forms. Specifically, it appears at the very end of the verb, except when there is an adjacent agreement morpheme specified as [+Colloquial]. This can be seen, for instance, in the forms 3Pl.Abs-2Sg.Coll.Msc.Dat *d-a-s-k* in table 2 and 3Pl.Abs-3Pl.Dat-2Sg.Coll.Fem.Erg *d-o-tze-s-na* in table 5. We assume that this Pl.Abs morpheme is generated in final position, and that a special *colloquial metathesis* rule applies when it is preceded by a colloquial agreement morpheme (see Hale 1973, Harbour 2005, Harris and Halle 2005 and Adger 2005 for other cases of morpheme metathesis.)

2 Agreement Morphemes

A cursory look at tables 1–5 quickly reveal that Dat and Erg agreement morphemes have several shared properties that separate them from Abs agreement. The former are always realized as suffixes, while latter always as prefixes. Furthermore, several forms of Dat and Erg are identical, such as the suffix *-t* for 1Sg.

Erg↓ Abs→	1S	1P	2S.FOR	2P
1S	X	X	s-aitu-t	s-aitu-e-t
1P	X	X	<u>s-ara</u>	<u>s-ara-e</u>
2S.M.COLL	X	X	X	X
2S.F.COLL	X	X	X	X
2S.FOR	n-o-su	g-o-su-s	X	X
2P	n-o-su-e	g-o-su-e-s	X	X
3S	n-eu-∅	g-aitu-∅	s-aitu-∅-s	s-aitu-e-∅
3P	n-eu-∅-e	g-aitu-∅-e	s-aitu-∅-e	s-aitu-e-∅-e

Erg↓ Abs→	3S	3P
1S	d-o-t	d-o-t-s
1P	d-o-u	d-o-u-s
2S.M.COLL	d-o-k	d-o-s-k
2S.F.COLL	d-o-na	d-o-s-na
2S.FOR	d-o-su	d-o-su-s
2P	d-o-su-e	d-o-su-e-s
3S	d-eu-∅	d-eitu-∅-s
3P	d-eu-∅-e	d-eitu-∅-e-s

Table 3: Absolutive-ergative auxiliary

The following are the vocabulary entries relevant for tables 1–3:[5],[6]

(2)   Vocabulary entries for 1st person[7]

     a.   /g-/ $\leftrightarrow$ [−Motion, −Peripheral, +Participant, +Author, −Singular]   Pl.Abs

     b.   /-u/ $\leftrightarrow$ [+Motion, −Peripheral, +Participant, +Author, −Singular]   Pl.Erg

     c.   /-ku/ $\leftrightarrow$ [+Motion, +Peripheral, +Participant, +Author, −Singular]   Pl.Dat

     d.   /n-/ $\leftrightarrow$ [−Motion, −Peripheral, +Participant, +Author, +Singular]   Sg.Abs

     e.   /-t/ $\leftrightarrow$ [+Motion, +Participant, +Author, +Singular]   Sg.Erg/Dat

(3)   Vocabulary entries for 2nd person

     a.   /g-/ $\leftrightarrow$ [−Motion, −Peripheral, +Part, −Authot, +Singular, +Coll]   Sg.Coll.Abs

     b.   /-k/ $\leftrightarrow$ [+Motion, +Part, −Author, +Singular, +Coll, −Fem]   Sg.Coll.Msc.Erg/Dat

     c.   /-na/ $\leftrightarrow$ [+Motion, +Part, −Author, +Singular, +Coll, +Fem]   Sg.Coll.Fem.Erg/Dat

     d.   /s-/ $\leftrightarrow$ [−Motion, −Peripheral, +Participant, −Author]   Abs

     e.   /-su/ $\leftrightarrow$ [+Motion, −Peripheral, +Participant, −Author]   Erg

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[5]Tables 4–5 are essentially the result of the simple combination of the morphemes found in tables 1–3, with some adjustments we discuss below.

[6]These vocabulary entries differ somewhat from the ones given in the paper (Arregi and Nevins 2006). In particular, the entries relevant for ergative agreement given in the paper are underspecified with respect to the ones given here. After careful consideration, we believe the ones given here are more appropriate. Nevertheless, this divergence does not affect our analysis of the g-/z- constraint in the paper in any way.

[7]For justification of the features used in this appendix, see Arregi and Nevins 2006.

Erg↓ Dat→	1s	1p	2s.FOR	2p
1s	X	X	d-o-tzu-t	d-o-tzu-e-t
1p	X	X	d-a-tzu	d-a-tzu-e
2s.M.COLL	d-o-st-k	d-o-k	X	X
2s.F.COLL	d-o-st-na	d-o-na	X	X
2s.FOR	d-o-st-su	d-o-su	X	X
2p	d-o-st-su-e	d-o-su-e	X	X
3s	d-o-st-∅	d-o-sku-∅	d-o-tzu-∅	d-o-tzu-e-∅
3p	d-o-st-∅-e	d-o-sku-∅-e	d-o-tzu-∅-e	d-o-tzu-e-∅-e

Erg↓ Dat→	3s	3p
1s	d-o-tze-t	d-o-tze-e-t
1p	d-o-tze-u	d-o-tze-e-u
2s.M.COLL	d-o-tze-k	d-o-tze-e-k
2s.F.COLL	d-o-tze-na	d-o-tze-e-na
2s.FOR	d-o-tze-su	d-o-tze-e-su
2p	d-o-tze-su-e	d-o-tze-e-su-e
3s	d-o-tze-o	d-o-tze-e-∅
3p	d-o-tze-o-e	d-o-tze-e-∅-e

Table 4: Absolutive-dative-ergative auxiliary (3Sg absolutive)

      f.   /-tzu/ ↔ [+Motion, +Peripheral, +Participant, −Author]   Dat

(4)   Vocabulary entries for 3rd person

      a.   /d-/ ↔ [−Motion, −Peripheral][8]   Abs

      b.   /∅/ ↔ [+Motion, −Peripheral]   Erg

      c.   /-ko/ ↔ [+Motion, −Peripheral]   Dat

(5)   /-e/ ↔ [−Singular]   Pl

An important feature of ergative and dative agreement morphemes is that they are both subject to fission (see Noyer 1992, Halle 1997.) After insertion of the entry whose feature specification matches the most features in the morpheme, fission splits off the remaining features into a separate morpheme. Vocabulary insertion then proceeds onto this morpheme as usual. In particular, fission accounts for the fact that all 2Pl and 3Pl morphemes contain the vowel *e*. For instance, 3Pl.Dat *-ko-e* in table 2 is a sequence of two suffixes: *-ko* (4-c), which matches the features [+Motion, −Peripheral, −Participant, −Author], and *-e* (5), which matches [−Singular]. Note that the plural suffix *-e* never appears in 1Pl agreement. This is due to the fact that the more specific suffixes *-u/ku* (2-b)–(2-c) already match [−Singular].

    The following examples illustrate the workings of vocabulary insertion in agreement mor-

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[8]3rd person absolutive is realized as *d-* only in the present indicative. In other tenses, other prefixes are used (*s-*, ∅, *y-* and *l-*.) See Gaminde 2000.

Erg↓ Dat→	1s	1P	2S.FOR	2P
1s	X	X	d-o-tzu-t-s	d-o-tzu-e-t-s
1P	X	X	<u>d-a-tzu-s</u>	<u>d-a-tzu-e-s</u>
2s.M.COLL	d-o-st-s-k	<u>d-o-s-k</u>	X	X
2s.F.COLL	d-o-st-s-na	<u>d-o-s-na</u>	X	X
2s.FOR	d-o-st-su-s	<u>d-o-su-s</u>	X	X
2P	d-o-st-su-e-s	<u>d-o-su-e-s</u>	X	X
3s	d-o-st-∅-s	d-o-sku-∅-s	d-o-tzu-∅-s	d-o-tzu-e-∅-s
3P	d-o-st-∅-e-s	d-o-sku-∅-e-s	d-o-tzu-∅-e-s	d-o-tzu-e-∅-e-s

Erg↓ Dat→	3s	3P
1s	d-o-tze-a-s	d-o-tze-e-t-s
1P	d-o-tze-u-s	d-o-tze-e-u-s
2s.M.COLL	d-o-tze-s-k	d-o-tze-e-s-k
2s.F.COLL	d-o-tze-s-na	d-o-tze-e-s-na
2s.FOR	d-o-tze-su-s	d-o-tze-e-su-s
2P	d-o-tze-su-e-s	d-o-tze-e-su-e-s
3s	d-o-tze-o-s	d-o-tze-e-∅-s
3P	d-o-tze-o-e-s	d-o-tze-e-∅-e-s

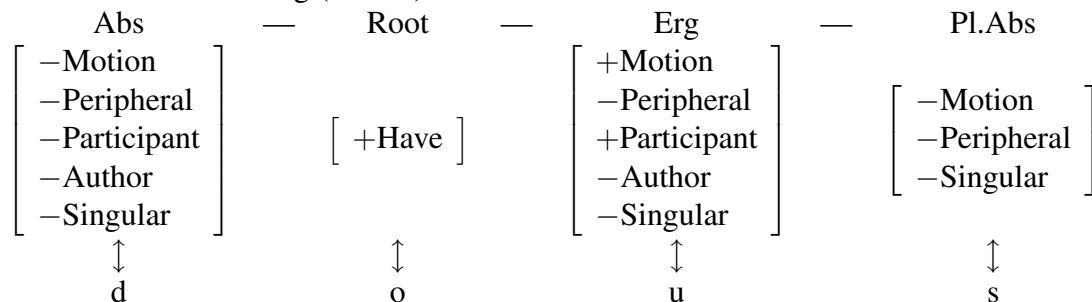Table 5: Absolutive-dative-ergative auxiliary (3Pl absolutive)

phemes:[9]

(6)   d-a-s-na: 3Pl.Abs-2Sg.Coll.Fem (table 2)

Abs	—	Root	—	Dat	—	Pl.Abs
$\begin{bmatrix} -\text{Motion} \\ -\text{Peripheral} \\ -\text{Participant} \\ -\text{Author} \\ -\text{Singular} \end{bmatrix}$		$\begin{bmatrix} -\text{Have} \end{bmatrix}$		$\begin{bmatrix} +\text{Motion} \\ +\text{Peripheral} \\ +\text{Participant} \\ -\text{Author} \\ +\text{Singular} \\ +\text{Colloquial} \\ +\text{Feminine} \end{bmatrix}$		$\begin{bmatrix} -\text{Motion} \\ -\text{Peripheral} \\ -\text{Singular} \end{bmatrix}$
↕		↕		↕		↕
d		a		na		s

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[9]The feature [±Have] appearing in the root in these examples is discussed in section 3.

(7)   d-o-u-s: 3Pl.Abs-1Pl.Erg (table 3)

Abs	—	Root	—	Erg	—	Pl.Abs

$$\begin{bmatrix} -\text{Motion} \\ -\text{Peripheral} \\ -\text{Participant} \\ -\text{Author} \\ -\text{Singular} \end{bmatrix} \quad \begin{bmatrix} +\text{Have} \end{bmatrix} \quad \begin{bmatrix} +\text{Motion} \\ -\text{Peripheral} \\ +\text{Participant} \\ -\text{Author} \\ -\text{Singular} \end{bmatrix} \quad \begin{bmatrix} -\text{Motion} \\ -\text{Peripheral} \\ -\text{Singular} \end{bmatrix}$$

$$\updownarrow \qquad\qquad \updownarrow \qquad\qquad \updownarrow \qquad\qquad \updownarrow$$

$$\text{d} \qquad\qquad \text{o} \qquad\qquad \text{u} \qquad\qquad \text{s}$$

In these examples, the root is realized as specified below in section 3. Furthermore, Pl.Abs is realized as -*s*, and as discussed in section 1, colloquial metathesis applies to (6) to give *d-a-s-na*.

The preceding entries are also relevant for tables 4–5, in addition to the following:

(8)   Vocabulary entries for dative and ergative agreement

a.   /-sku/ ↔ [+Motion, +Peripheral, +Part, +Auth, −Singular] / ___ [+Motion] 1Pl.Dat

b.   /-st/ ↔ [+Motion, +Peripheral, +Part, +Auth, +Singular] ___ [+Motion]   1Sg.Dat

c.   /-tze/ ↔ [+Motion, +Peripheral] / ___ [+Motion]   3.Dat

d.   /-a/ ↔ [+Motion, −Peripheral, +Participant, +Author, +Singular] / *tze* ___ *s* 1Sg.Erg

e.   /-o/ ↔ [+Motion, −Peripheral] / *tze* ___   3.Erg

All these affixes spell out dative or ergative agreement in contexts which limit them to forms in tables 4–5. For instance, *-tze* spells out 3rd dative in the context of ergative agreement, and *-o* is the realization of 3rd ergative in the context of *-tze*.

3   Root Allomorphy

The form of the root depends on two main factors: (i) the presence or absence of ergative agreement, and (ii) the feature specification of absolutive agreement.[10] We implement this with the following rules, which apply prior to vocabulary insertion:[11]

(9)   Insert the feature [+Have] in the root in the context of ergative Agr. Insert [−Have] otherwise.

(10)   Copy person/number features from absolutive agreement onto the root.

Both the feature [Have] and the features copied from the absolutive node are relevant for the vocabulary entries for the root.

The following impoverishment rules and vocabulary entries account for the exponence of roots specified as [−Have] (henceforth *intransitive roots*; see tables 1–2:)

(11)   2nd fomal impoverishment
        [+Singular] → ∅ / [___, −Colloquial]

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[10]To a limited extent, the value of the feature [Participant] in ergative agreement also determines the form of the root. We implement this below with impoverishment rules (15)–(17).

[11]Root allomorphy also depends on tense. The analysis in this section is only valid for present indicative auxiliaries.

(12)　　Dative root impoverishment
　　　　[−Singular] → ∅ / ___ [+Peripheral]

(13)　　a.　/ire/ ↔ [−Have, −Participant, −Author, −Singular]
　　　　b.　/as/ ↔ [−Have, +Participant, +Singular]
　　　　c.　/ara/ ↔ [−Have, +Participant]
　　　　d.　/a/ ↔ [−Have]

With the exception of the second singular formal root, these vocabulary entries account for the forms of the root in table 1. The root in this table is *as* in the first singular, *ara* in the first/second plural, *ire* in the third plural, and *a* in the third singular. The second singular formal is *ara* due to the 2nd formal impoverishment rule, which prevents the insertion of the more richly specified *as*. Finally, dative root impoverishment is needed to account for the fact that the root in table 2 is always *a*, regardless of the feature content of absolutive agreement.

　　The following are the entries relevant to roots specified as [+Have] (henceforth *transitive roots*; see tables 3–5:)[12]

(14)　　a.　/o/ ↔ [+Have, −Participant, −Author]
　　　　b.　/aitu/ ↔ [+Have, +Participant]
　　　　c.　/eitu/ ↔ [+Have, −Singular][13]
　　　　d.　/eu/ ↔ [+Have]

As it stands, the analysis assigns the correct exponents to transitive roots specified for second person (*aitu*; table 3), and to all those in auxiliaries containing dative agreement (*o*; tables 4–5). However, three additional impoverishment rules are needed to account for other transitive roots. Thay all apply after (9)–(10) and before vocabulary insertion.

　　The first such rule accounts for the exponence of 3rd person transitive roots in the context of 3rd person ergative agreement:

(15)　　3rd Impoverishment
　　　　[+Have, −Participant] → [+Have] / ___ [−Peripheral, −Participant]

This rule triggers the insertion of the underspecified entries *eu/eitu* in 3rd person transitive roots in the context of nonparticipant ergative agreement. In the context of participant ergative agreement, the impoverishment rule does not apply, and 3rd person roots are realized as the more richly specified *o*. Note that this rule requires ergative agreement to be adjacent to the root, which entails that it does not apply if dative agreement intervenes. Indeed, as shown in tables 4–5, 3rd person transitive roots are always realized as *o* in the context of dative agreement.

　　The other two impoverishment rules apply to roots specified as first person:[14]

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[12]Note that some of the roots in the underlined forms in tables 3–5 do not have any of these transitive exponents. As a result of obliteration of ergative agreement, which applies prior to (9), the root is specified as [−Have] in these cases. This is due to the g-/z- constraint, and is discussed at length in the paper (Arregi and Nevins 2006.)

[13]The entries for *aitu* and *eitu* are ordered as shown. This extrinsic ordering is needed to account for the fact that 2Pl transitive roots are spelled out as *aitu*, not *eitu*.

[14]Both (17) and (15) can be seen as instances of dissimilation, since in both cases a [αParticipant] feature is impoverished in the context of [αParticipant]. They lend futher support to the general argument in Arregi and Nevins 2006 that impoverishment rules, rather than being random, are often the result of a constraint on syntagmatic identity

(16)　1Sg impoverishment
[+Have, +Participant, +Author, +Singular] →
[+Have, −Participant, −Author, +Singular]

(17)　1Pl impoverishment
[+Have, +Participant, +Author, −Singular] →
[+Have, −Participant, −Author, −Singular] / ___ [−Peripheral, +Participant]

Due to (16), transitive roots specified for 1Sg are impoverished so that they are specified for 3Sg, which means that the root is spelled out as *o* or *eu*. (17) does the same for those specified for 1Pl in the context of participant ergative agreement, yielding *o* (in other contexts, 1Pl roots are realized as other participant roots, with *aitu*.)

4　Readjustment Rules

The surface forms of all auxiliaries are shown in tables 7–11. In order to obtain these surface forms, certain readjustment and phonological rules discussed in this section must apply first. All readjustment rules introduced below are exemplified in table 6.

　　The following readjustment rules account for certain allomorphs of the agreement suffixes *-tze* (8-c), *-k* (3-b) and *-e* (5) (the examples to the right of each rule are from table 6):

(18)　a.　*e*-elision
　　　　e → $\emptyset$ / ___ + C_0u　　　　　　　　　　　　　　d+o+tze+u → dotzu
　　　b.　*a*-epenthesis
　　　　$\emptyset$ → a / s + ___ k　　　　　　　　　　　　　　d+a+s+k → dasak
　　　c.　*r*-epenthesis
　　　　$\emptyset$ → r / eu + ___ e　　　　　　　　　　　　n+eu+$\emptyset$+e → neure

The following readjustment rules apply afterwards in the order shown:

(19)　a.　Nonhigh vowel elision
　　　　[V, −high] → $\emptyset$ / ___ + [V, −low]　　　　s+aitu+e+$\emptyset$+e → saitue
　　　b.　*i*-epenthesis
　　　　$\emptyset$ → i / C + ___ e +　　　　　　　　　　d+o+st+$\emptyset$+e → dostie
　　　c.　*e*-epenthesis
　　　　$\emptyset$ → e / C + ___ C　　　　　　　　　　　d+a+t+s → dates
　　　d.　Vowel dissimilation
　　　　e → a / e + C_0 ___ C_0#　　　d+o+tzu+e+t+s → d+o+tzu+e+t+es → dotzuetas[15]

Although these latter rules are of more general application than those in (18), they must be considered readjustment rules, since they only apply in verbs.

　　Finally, the following are rules of the phonological component, and find independent justification outside verbal forms (for obvious reasons, they apply in the order shown:)

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of abstract features. Interestingly, (17) is reminiscent of the conditioning environment for the g-/z- constraint discussed in that paper: 1Pl features are impoverished in the context of participant agreement.

[15]In this example, *e*-epenthesis applies before vowel dissimilation.

8

(20)   a.   Glide formation
                A high vowel becomes a glide after a vowel.
            b.   Monothongization
                 ow → u

Glide formation is relevant for the roots *aitu*, *eitu* and *eu*, and for the 1Pl.Erg–3Abs forms *d-o-u(s)* (table 3,) which surface as *du(s)* (table 9) due to (20-b).[16]

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[16]The glide formation rule is only taken into account for these forms in tables 6–11.

Underlying form	3S.A-3S.D-1P.E d+o+tze+u	3P.A-2S.M.D d+a+s+k	1S.A-3P.E n+eu+∅+e	2P.A-3P.E s+aitu+e+∅+e
e → ∅ / ___ + C₀u	d+o+tz+u	—	—	—
∅ → a / s + ___ k	—	d+a+s+ak	—	—
∅ → r / eu + ___ e	—	—	n+eu+re	—
[V, −high] → ∅ / . . .	—	—	—	s+aitu+∅+∅+e
∅ → i / C + ___ e	—	—	—	—
∅ → e / C + ___ C	—	—	—	—
e → a / e + C₀ ___ C₀#	—	—	—	—
Surface form	dotzu	dasak	neure	saitue

Underlying form	3S.A-1S.D-3P.E d+o+st+∅+e	3P.A-1S.D d+a+t+s	3P.A-2S.D-1S.E d+o+tzu+e+t+s	2P.A s+ara+e
e → ∅ / ___ + C₀u	—	—	—	—
∅ → a / s + ___ k	—	—	—	—
∅ → r / eu + ___ e	—	—	—	—
[V, −high] → ∅ / . . .	—	—	—	s+ar+e
∅ → i / C + ___ e	d+o+st+∅+ie	—	—	s+ar+ie
∅ → e / C + ___ C	—	d+a+t+es	d+o+tzu+e+t+es	—
e → a / e + C₀ ___ C₀#	—	—	d+o+tzu+e+t+as	—
Surface form	dostie	dates	dotzuetas	sarie

Underlying form	3P.A-3P.D–1S.E d+o+tze+e+t+s	3S.A-3S.D–2S.E d+o+tze+su	3S.A-3P.D–2S.E d+o+tze+e+su
e → ∅ / ___ + C₀u	—	d+o+tz+su	d+o+tz+∅+su
∅ → a / s + ___ k	—	—	—
∅ → r / eu + ___ e	—	—	—
[V, −high] → ∅ / . . .	d+o+tz+e+t+s	—	—
∅ → i / C + ___ e	d+o+tz+ie+t+s	—	—
∅ → e / C + ___ C	d+o+tz+ie+t+es	d+o+tz+esu	d+o+tz+∅+esu
e → a / e + C₀ ___ C₀#	d+o+tz+ie+t+as	—	—
Surface form	dotzietas	dotzesu	dotzesu

Table 6: Readjustment rules

Abs	
1S	nas
1P	gara
2S.FOR	sara
2P	sarie
3S	da
3P	dire

Table 7: Absolutive auxiliary, surface forms

Dat↓ Abs→	3s	3P
1s	dast	dates
1P	daku	dakus
2S.M.COLL	dak	dasak
2S.F.COLL	dana	dasena
2S.FOR	datzu	datzus
2P	datzue	datzues
3s	dako	dakos
3P	dakie	dakies

Table 8: Absolutive-dative auxiliary, surface forms

Erg↓ Abs→	1s	1P	2S.FOR	2P	3s	3P
1s	X	X	saitut	saituet	dot	dotes
1P	X	X	<u>sara</u>	<u>sarie</u>	du	dus
2S.M.COLL	X	X	X	X	dok	dosak
2S.F.COLL	X	X	X	X	dona	dosena
2S.FOR	nosu	gosus	X	X	dosu	dosus
2P	nosue	gosues	X	X	dosue	dosues
3s	neu	gaitu	saitus	saitue	deu	deitus
3P	neure	gaitue	saitue	saitue	deure	deitues

Table 9: Absolutive-ergative auxiliary, surface forms

Erg↓ Dat→	1s	1P	2S.FOR	2P	3s	3P
1s	X	X	dotzut	dotzuet	dotzet	dotziet
1P	X	X	<u>datzu</u>	<u>datzue</u>	dotzu	dotzu
2S.M.COLL	dostek	<u>dok</u>	X	X	dotzek	dotziek
2S.F.COLL	dostena	<u>dona</u>	X	X	dotzena	dotziena
2S.FOR	dostesu	<u>dosu</u>	X	X	dotzesu	dotzesu
2P	dostesue	<u>dosue</u>	X	X	dotzesue	dotzesue
3s	dost	dosku	dotzu	dotzue	dotzo	dotzie
3P	dostie	doskue	dotzue	dotzue	dotzie	dotzie

Table 10: Absolutive-dative-ergative auxiliary, surface forms (3Sg absolutive)

Erg↓ Dat→	1S	1P	2S.FOR	2P	3S	3P
1S	X	X	dotzutes	dotzuetas	dotzeas	dotzietas
1P	X	X	<u>datzus</u>	<u>datzues</u>	dotzus	dotzus
2S.M.COLL	dostesak	<u>dosak</u>	X	X	dotzesak	dotziesak
2S.F.COLL	dostesena	<u>dosena</u>	X	X	dotzesena	dotziesena
2S.FOR	dostesus	<u>dosus</u>	X	X	dotzesus	dotzesus
2P	dostesues	<u>dosues</u>	X	X	dotzesues	dotzesues
3S	dostes	doskus	dotzus	dotzues	dotzos	dotzies
3P	dosties	doskues	dotzues	dotzues	dotzies	dotzies

Table 11: Absolutive-dative-ergative auxiliary, surface forms (3Pl absolutive)