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The allomorphy of na in as a case of vowel/zero alternation in Teraman Abruzzese*

1. Introduction

This contribution investigates a characteristic of Eastern Abruzzese dialects that has not been noticed in previous studies (Savini, 1881, Giammarco, 1960, 1979, Avolio, 1995, Bigalke, 1996, Hastings, 1997, 2001): the allomorphy of the negative adverb na that, in Teraman and other Eastern Abruzzese dialects, may surface as [nәn], [n:] and [nә]. The map in Table 1, taken from Giammarco (1979: 88), shows the Italian region of Abruzzi and the area where Eastern Abruzzese dialects (Abruzzese orientale o adriatico), namely Teraman, Pescarese, Chietino, Lancianese and Vastese, are spoken.

Table 1. From Giammarco (1979: 88)

* I am indebted to Laura Bafile, Tobias Scheer, Anna M. Thornton and two anonymous reviewers who have helped me to greatly improve both the form and the content of this contribution. All usual disclaimers apply.

1 The negative adverb will be quoted by using the allomorph which occurs more frequently.

Ricevuto: marzo 2009
Accettato: luglio 2009

SSL XLVII (2009), pp. 83-110
According to S. CHEER (2004: xliv, 239) the difference in structure between phonology and syntax (flat vs. arboreal) explains why recursion, which characterizes syntax, is unknown in phonology. Recursion presupposes an arboreal structure because in a recursive structure a given node dominates a node of the same kind. Flat, linear structure as a consequence, may never be recursive.

In previous studies (Savini, 1881, Giammarco, 1979, Hastings, 2001) the three allomorphs [nən], [nː] and [nnə] are found indiscriminately as quotations of the negative adverb without the data being systematized nor analysed. The complementary distribution of the allomorphs and the phonological conditioning that determines their surfacing have therefore not been detected.

This contribution draws attention to the distribution of the allomorphs in the dialect spoken in Teramo in order to show that the allomorphy of the negative adverb *nən* in Teraman is phonologically conditioned and that the different allomorphs of the negative adverb share the same phonological representation, that of a geminate /n/. It will be argued that the allomorphy of *nən* is a case of vowel/zero alternation. This result can only be obtained by allowing for a representation of phonological constituent structure as a strict sequence of non-branching onsets and non-branching nuclei and by positing lateral relations entertained among segments. Accordingly, this study is couched in the framework known as CVCV (Lowenstamm, 1996, Scheer, 2004 among others), described in more detail in Section 2. Section 3 introduces data concerning the distribution of the allomorphs of the negative adverb *nən* in Teraman. Section 4 advances a proposal that derives such allomorphy from Government, a regressive lateral force, arguably part of UG, which nuclei exert towards neighbouring consonants or vowels (Scheer, 1998: 43). Section 5 describes the phonology of clitic clusters formed by *nən* and discusses its implications for the analysis proposed in this study. Section 6 is dedicated to final remarks.

2. Theoretical assumptions

According to the definition of Scheer (2004), CVCV is a syntagmatic or lateral theory of phonology. These attributes refer to the fact that in CVCV phonological constituent structure boils down to a monotonic sequence of consonantal and vocalic positions, and that all syllabic effects are derived from a network of lateral relations entertained by segments. The lack of branching constituents and of arboreal structure entails that syllabic structure in CVCV is entirely flat. In CVCV the minimal structural unit that can be manipulated by phonology is a CV unit, namely an onset-nucleus sequence: the presence of an onset entails the presence of a nucleus and vice versa (Scheer, 2004: 1).

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2 According to Scheer (2004: xliv, 239) the difference in structure between phonology and syntax (flat vs. arboreal) explains why recursion, which characterizes syntax, is unknown in phonology. Recursion presupposes an arboreal structure because in a recursive structure a given node dominates a node of the same kind. Flat, linear structure as a consequence, may never be recursive.
The absence of branching constituents from the phonological representation implies the proliferation of empty structure; the CVCV representation of some common phonological objects, exemplified in (1), is an illustration of this state of affairs:

(1) closed syllable  geminate  long vowel  [...]  «branching onset»
    O N O N  O N O N  O N O N  ... O N  O N O N
    | | | | \ / \ / | | | | | | |
    C V C φ  C  V  C φ  T φ  R V

As in standard Government Phonology (Kaye, Lowenstamm and Vergnaud, 1985, 1990), in CVCV the presence of empty nuclei is not arbitrary but is regulated by the Empty Category Principle (ECP). The ECP version proposed by Scheer (2004: 67) is shown in (2):

(2) Empty Category Principle (ECP)
    A nucleus may remain empty if:
    a. properly governed
    b. enclosed in a domain of Infrasegmental Government
    c. word final

If the ECP of an underlying empty nucleus is not satisfied the nucleus vocalizes according to language specific epenthesis.

Proper Government, mentioned in (2a), in CVCV is a regressive lateral force that inhibits segmental expression. Word-externally Government can only be exerted by full nuclei whereas the governing ability of final empty nuclei is object of parametric variation.

An empty nucleus then, must necessarily be followed by a phonetically expressed nucleus or by a final empty nucleus able to govern.

Infrasegmental Government, mentioned in (2b), on the other hand, is a lateral force that can be established between two neighbouring consonants if two conditions are respected: one concerns the internal structure of the consonants and the other concerns the licensing of the head of the domain. The internal structure of consonants, in all versions of Government Phonology and therefore in CVCV, consists in a combination of elements that determine the com-

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3 The examples in this section are quoted from Scheer (2004: 1).
4 T and R respectively exemplify an obstruent and a sonorant consonant.
5 The main difference between elements and features, alternatively employed to represent the internal structure of segments, is that the former may be phonetically interpreted.
plexity of the segments (Harris, 1990): the more primes are present in the representation of a segment, the more complex this segment is. Complexity then determines, among other things, the effects that are usually attributed to sonority, the belonging of a segment to a given class, and the segment’s abilities to govern. In Harris’ theory, because obstruents are made up of more phonological primes, they govern sonorants, which are less complex.

As opposed to Harris (1990), Scheer (1996) believes that the complexity of a given consonant should be calculated by counting only the primes that define the place of articulation. In this view, sonorants are more complex than obstruents. As a consequence, according to Scheer (2004), sonorants govern obstruents and all governing relations are head-final.

Infrasegmental Government may be established between two neighbouring consonants \( x \) and \( y \) when interaction may take place between those consonants, namely when in correspondence of at least one phonological prime of the structure of \( x \), the autosegmental line in the structure of \( y \) is empty, as illustrated in (3)\(^6\):

\[
\begin{align*}
(3) & \quad \text{Consonantal interaction possible} \\
& \quad \text{IG} \\
& \quad p \quad r \\
& \quad \text{I/U autosegmental line} \quad \varnothing \leftarrow I \\
& \quad | \leftarrow | \\
& \quad A \quad \text{autosegmental line} \quad \varnothing \quad \text{A} \\
& \quad \text{b. Consonantal interaction impossible} \\
& \quad \ast \text{IG} \\
& \quad s \quad r \\
& \quad \text{I/U autosegmental line} \quad I \quad I \\
& \quad | \quad | \\
& \quad A \quad \text{autosegmental line} \quad \text{A} \quad \text{A}
\end{align*}
\]

In a domain of Infrasegmental Government, the head of the governing domain, following Charette’s (1990) insight according to which a non-nuclear

\(^6\) In the examples in (3) only the primes relevant for this discussion are displayed. Moreover, the internal structure of consonants, which is not the focus of the discussion, is taken for granted. Evidence for the internal representation of consonants is provided by Scheer (1996).
The allophony of $n\overline{a}n$

governor may govern only if it is licensed to do so by a following nucleus, is only licensed in clusters traditionally defined as tautosyllabic. There, heads are followed by full nuclei that license them to govern. On the other hand, in clusters traditionally called heterosyllabic, heads, namely sonorants, which are governors, are followed by empty nuclei. Those empty nuclei do not license them to establish consonantal interaction and therefore Infrasegmental Government. The two situations are exemplified in (4):

(4)

This is why this governing relation, like all governing relations in CVCV, is head-final. Infrasegmental Government covers all functions traditionally attributed to a branching onset with some minor differences not relevant for this discussion (cf. Scheer, 2004: 72).

As for the last point illustrated in the ECP, namely word-final empty nuclei, according to the theory, they are licensed on a parametric basis. The source of their Licensing, as opposed to other nuclei, does not come from a position internal to the phonological string. In CVCV, where all governing relations are head-final, the fact that the rightmost constituent displays peculiar properties is not a problem. According to Scheer (2004: 71), what at first sight looks like a flaw of the theory, namely the presence of empty nuclei apparently unlicensed, ultimately reveals itself to be an advantage: the special status of final empty nuclei reflects the crosslinguistically peculiar behaviour of the right margin of the word if compared to the word-internal domain.

Proper Government and Infrasegmental Government, as seen above, are lateral regressive forces that inhibit the segmental expression of nuclei. The former concerns constituent structure while the latter deals with melodic structure. The nuclei targeted by Proper Government and those enclosed in a domain of Infrasegmental Government are silenced, their melodic expression being suppressed. Licensing, on the other hand, is a lateral force that enhances segmental expression. Vowels must have their complement licensed to be long and licensed consonants are observed to resist lenition or undergo fortition (Ségéral and Scheer, 2001a, 2008). According to Scheer (2008: 713 f.), Government and Licensing do not act independently of one another and they cannot target the same constituent. Accordingly, they are hierarchically ranked so that Government applies over Licensing in the cases in which they could in princi-
ple apply simultaneously. Those forces apply by default from nuclei towards their own onsets. Other nuclei are targeted either when an empty nucleus requires governing or licensing or when Government has applied to the onset, which cannot be simultaneously licensed. In this case the licensing ability is exhausted on the preceding nucleus. Government and Licensing, lateral regressive antagonistic forces, are solely responsible of the effects commonly attributed to syllabic structure and their existence accounts for empirical data concerning crosslinguistic phonological phenomena among which are vowel/zero alternations.

2.1. Vowel/zero alternations

This section draws heavily on the thorough research conducted by Scheer, recapitulated in his volume of 2004, and is devoted to a brief illustration of the phonological phenomenon of vowel/zero alternations, with which this study is mostly concerned.

The presence of vowel/zero alternation characterizes genetically unrelated languages, as illustrated in (5) with data adapted from Scheer (2004: 9):

(5) a. Czech lokt-e loket loket-ní knee-gen.sg, -nom.sg, -adj
b. Moroccan Arabic kitbu- kb, kíbb write-pf.att.3pl, -3sg, -3sg.caus
c. Somali nirg-o nirig nirig-ta young female camel-pl, -sg.indef, -sg.def
d. Turkish devr-i devir devir-den transfer-acc.sg, -nom.sg, -abl.sg

As Scheer (1998: 65) remarks, the crosslinguistic existence of vowel/zero alternations and the remarkable stability of the context controlling the appearance of the vowel suggest a common functioning, which he shows to depend on a lateral relation entertained among nuclei, namely Proper Government. Previous analyses of vowel/zero alternations, either traditional generative or framed in a Standard Government Phonology approach, do not succeed in unifying the phenomenon, nor its driving force. Traditional generative analyses, which only concern Slavic vowel/zero alternations (Lightner, 1965, Rubach, 1984, 1986, Kenstowicz and Rubach, 1987, Spencer, 1986 among others), fail to detect that lateral forces and internuclear communication are at stake in vowel/zero alternations. Besides, they do not extend their findings outside Slavic. Standard Government Phonology analysts, on the other hand, unify the phenomenon of vowel/zero alternations acknowledging it as a crosslinguistic feature and develop theoretical tools to account for it through the analysis of languages such as Moroccan Arabic (Kaye, 1990), French (Charette, 1990, 1991), Tangale (Nikiema, 1989) and Tigrinya (Kaye, Lowenstamm and Vergnaud, 1990). As shown in Scheer (1998), however, they rely on four different devices, namely
Proper Government, Constituent Government, Interconstituent Government and Government Licensing in order to derive vowel/zero alternations attested across languages. Moreover, the Standard Government Phonology account of vowel/zero alternations in French relies on the existence of branching onsets but the same analysis fails to account for Czech data (Scheer, 1998).

The government-based account proposed by Scheer, unifies both the phenomenon and the cause that determines it. According to Scheer (2004) Proper Government, as seen in the previous section, is a regressive lateral force that inhibits segmental expression and can ordinarily be exerted only by full nuclei. As in Standard Government Phonology, according to the ECP, when nuclei are not properly governed they must be phonetically expressed. Alternating vowels, according to Scheer, are floating vowels. Their melody is determined in the lexicon but is not autosegmentally linked to its corresponding V position. When this V position is governed, it is silent. Failure to receive government results in vocalization by means of the lexical melody that becomes linked to its corresponding structural position.

Alternating vowels then surface only when their corresponding structural position, a nucleus, is not governed, as exemplified in (6) with Czech data:

(6)  
   a. Alternating vowel governed

```
Gvt
C V C V
|   |   |
pesa [psa] dog:GEN.SG “of the dog”
```

   b. Alternating vowel un governed

```
Gvt
C V C V
|   |   |
peso [pes] dog:[NOM.SG] “the dog”
```

Scheer’s findings show, in addition, that vowel/zero alternations display two crosslinguistic patterns, that he calls Lower and Havlík according to the treatment of vowels in chains of alternation sites: the latter displays vocalisation of every other item counted from the right edge of the chain while the former vocalizes all items but the last one\(^7\). Those two patterns, according to

\(^7\) Scheer names the patterns respectively from the name under which a proposal of T. Lightner (1965) is known and from that of the Czech philologist Antonín Havlík.
Scheer, depend on the governing abilities of alternating vowels, abilities that are parametrized across languages. If alternating vowels, which Scheer unifies under the name of schwa, are able to govern a preceding alternation site, the Havlík pattern results. If they are not, the Lower pattern surfaces where all sites are vocalized but the last. The two patterns are illustrated in (7):

(7)  
a. *Alternating vowels can govern preceding vowels*  

Havlík (vocalizes every other item counted from the right edge of the chain)

*Old Czech*  
dom-ø-ekø  
house-DIM-DIM.NOM.SG

*Old Polish*  
pös-ekø  
dog- DIM.NOM.SG

b. *Alternating vowels cannot govern preceding vowels*  

Lower (displays vocalization of all items but the last one)

*Modern Czech*  
dom-ø-ekø  
house-DIM-DIM.NOM.SG

*Modern Polish*  
pös-ekø  
dog- DIM.NOM.SG

The parametrisation of the governing abilities of alternating vowels proposed by Scheer allows to account for the two patterns of vocalisation of alternation sites that are attested crosslinguistically. The pattern where in a chain of alternation sites all are vocalized but the last one, namely Lower, depends on the inability of alternating vowels to govern. Failure to receive government yields the vocalization of all sites but the last one. When alternating vowels may govern, on the other hand, their preceding alternation sites are silenced so that in a chain of alternation sites the emerging pattern, namely Havlík, shows vocalisation of every other item counted from the right edge of the chain.

Lightner’s proposal claims that a lowering rule applies to underlying vowels (yers) in Slavic. According to Lightner yers never surface with their own melodic content because they are either deleted or subject to the mentioned rule. Antonín Havlík, on the other hand, is to credit for the diachronic finding concerning Old Czech, known as Havlík’s law (HAVLÍK, 1889 and SCHEER, 2004), where, in a sequence of alternation sites, every other item is vocalized.
3. The allomorphs of the negative adverb non

Having introduced in the preceding sections the theoretical devices necessary to understand the analysis that will be proposed in this study, this section presents the relevant data by illustrating the distribution of the allomorphs of the negative adverb non in the dialect spoken in Teramo (henceforth Teraman).

3.1. Phonologically conditioned allomorphy

This section describes and examines the phonological context in which different allomorphs of the negative adverb emerge and shows that their surfacing has a phonological conditioning. To begin with, the allomorph [non] surfaces when the word that follows the negative adverb, a verb, begins with a single consonant or with a tautosyllabic cluster, as respectively shown in (8) and (9):

(8) non ˈvuːja
     not want:IND.PRS.1SG    “I do not want”
     non ˈdɪnə
     not give:IND.PRS.1SG    “I do not give”

(9) non ˈprɛːːə
     not pray:IND.PRS.1,3SG,1PL “I do not pray”
     non ˈtɾɛːːo
     not shiver:IND.PRS.1,3SG,1PL “I do not shiver”

The allomorph [nna], on the other hand, surfaces when heterosyllabic clusters, intrinsically long consonants and palatal glides follow, as respectively illustrated in (10), (11), (12):

(10) nna ˈʃtɛːə ˈbɛːːə
     not stay:IND.PRS.1SG well “I don’t feel well”

8 Although the theoretical framework in which this study is couched does not recognize the syllable as a phonological object, a phonological lingua franca will be used where possible.

9 In the examples of this section abstraction is being made from nasal assimilation and postnasal voicing sandhi phenomena that will be discussed in detail in 3.1.1.
Finally, the allomorph [nn] surfaces before unstressed vowels, as illustrated in (13):

(13)  nn æ̆  prə:mo
not open: IND.PRS.1PL “We do not open”
nn am  messə
not make the dough: IND.PRS.1SG,3PL “I, they don’t make the dough…”

When word-initial vowels are stressed, in fact, in Teraman, an epenthetic consonantal segment, the voiced velar fricative [ɣ], surfaces as onset of the stressed syllable. This is illustrated in (14):

(14)  nn ñtuk ’kæ
not break:INF “Don’t break!”
nn mbru ’jæ
not cheat:INF “Don’t cheat!”
nn mbunə
not soak IND.PRS.1,3SG 1PL “S/he doesn’t soak, I/they don’t soak”

When word-initial vowels are stressed, in fact, in Teraman, an epenthetic consonantal segment, the voiced velar fricative [ɣ], surfaces as onset of the stressed syllable. This is illustrated in (14):

(11)  nn  ’bbaxə
not drink:IND.PRS.1,3SG 1PL “S/he doesn’t drink, I, they don’t drink”
nn bballə
not dance:IND.PRS.1,3SG 1PL “S/he doesn’t dance, I, they don’t dance”
nn  ’ffæxə
not go.out:IND.PRS.2.PL “Don’t go out”
nn  ’ffənə
not go down: IND.PRS.1,3SG,3PL IMP.2PL “Don’t go down”

(12)  nn  ’jetə
not throw away:IND.PRS.1,3SG,3PL “S/he does not throw away” “I, they do not…”
nn  ’jəko
not play: IND.PRS.1,3SG,3PL “I, they don’t play, s/he doesn’t play”
(14)  
\[
\begin{array}{l}
\text{'γαπρι} \\
\text{open: IND.PRS.1,3SG.3PL} \\
\text{I, they open, s/he opens'}
\end{array}
\]
\[
\begin{array}{l}
\text{'γεφια} \\
\text{go out: IND.PRS.1,3SG.3PL} \\
\text{I, they go out, s/he goes out'}
\end{array}
\]

As a consequence, words that begin with a stressed vowel pattern with single consonant-initial words: they are preceded by the allomorph [nan], as shown in (15):

(15)  
\[
\begin{array}{l}
\text{nan 'gæ:pra}'^{10} \\
\text{not open: IND.PRS.1,3SG, 3PL} \\
\text{He does not open'}
\end{array}
\]
\[
\begin{array}{l}
\text{nan 'gëfia} \\
\text{not go out: IND.PRS.1,3SG, 3PL} \\
\text{He does not go out'}
\end{array}
\]

The table in (16) recapitulates the distribution of the allomorphs [nan], [nn] e [nnə]:

(16)  
\[
\begin{array}{l}
\text{Distribution of nan, nn, nnə} \\
a. [nan] surfaces before: \\
\text{words beginning with single consonant (lexical)} \\
\text{nan 'vú:ja} \\
\text{words beginning with single consonant (epenthetic)} \\
\text{nan 'gæ:pra} \\
\text{words beginning in tautosyllabic clusters} \\
\text{nan 'prë:ya}
\end{array}
\]
\[
\begin{array}{l}
b. [nn] surfaces before: \\
\text{words beginning with a vowel (unstressed)} \\
\text{nn æ 'pra:ma}
\end{array}
\]
\[
\begin{array}{l}
c. [nnə] surfaces before: \\
\text{words beginning with heterosyllabic clusters} \\
\text{nnə 'tëna} \\
\text{words beginning with intrinsically long consonants} \\
\text{nnə 'bba:wə} \\
\text{words beginning with palatal glides} \\
\text{nnə 'jetə}
\end{array}
\]

In (17) it is shown, as an illustration of the above point, how the different

\footnote{As illustrated in the next section fricatives are subject to strengthening after nasals.}
allomorphs of the third person singular of the verb *essere* «to be» are preceded by different allomorphs of *non* according to the verb-initial segments.

(17)  
| a. **copula**                   | [mn e bɔnɔ] “it is not good”  
| b. **full verb**               | [nɔn ɔɛ] “it is not”  
| c. **disyllabic form with [a] prothesis** used as copula and full verb | [mn a ’ɛɛ] “it is not”  

Moreover, in (18) it is shown how segments with identical melodic composition but different length\(^{11}\) drive the surfacing of different allomorphs.

(18)  
| a. [nɔn bɔ] < [nɔn ɔɔ]            | not can:IND.PRS.3SG “he/she cannot”  
| b. [nɔn ɔbavɔ]                     | not drink: IND.PRS.3SG,3PL “he does not drink”  

3.1.1. **Nasal and postnasal assimilation**

Teraman is characterized by a series of assimilatory phenomena concerning nasals. This section is dedicated to the illustration of such phenomena because they target the final consonant of the adverb *non* and determine the surfacing of other phonologically conditioned allomorphs. Some of these phenomena are illustrated in Giammarco (1977: 1282). Such description, however, is not systematic, the data are not always consistent and moreover they concern different Abruzzese and Molisan dialects. Hastings (2001: 255) provides a thorough illustration of assimilatory phenomena concerning nasals for Tollese, another Eastern Abruzzese dialect which is spoken in Tollo, less than 100 km South of Teramo. Below I provide a similar sketch restricted to Teraman.

Nasal assimilation in Teraman is both progressive and regressive. Nasals assimilate their place of articulation to following obstruents, which, in their turn, assimilate voicing to nasals\(^{12}\) as illustrated in (19).

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\(^{11}\) Singleton [b] results from postnasal voicing of /p/ whereas /b/ is intrinsically long and surfaces as [bb] in word-initial and intervocalic position.

\(^{12}\) Voicing of postnasal obstruents is a characteristic of all dialects South of the line going from Monti Albani to Ancona through Umbria (Rohlfs, 1966: 363).
THE ALLOMORPHY OF nan

(19) a. nan pritsa > [nam bôtsa]
   not can: IND.PRS.1SG “I can’t”
b. nan te > [nam de]
   not have: IND.PRS.3SG “He has not”
c. nan kə:ła > [nəŋ gæ:la]
   not descend: IND.PRS.3SG “He does not descend”

If a sonorant follows, the nasal undergoes regressive assimilation as exemplified in (20):

(20) a. nan rɛːta [nəŋ rɛːta]
   not laugh:INF “Don’t laugh”
b. nan mɛŋna [nam mɛŋna]
   not eat: IND.PRS.1,3SG,3PL “S/he does not eat”, “I, they do not eat”
c. nan lɛʃʃa [nəl lɛʃʃa]
   not leave: IND.PRS.1,3SG,3PL “S/he, it does not leave”, “I, they do not leave”

This is the reason why nan has been described as a monosyllable that strengthens the first consonant of the following word (Bigalke, 1996: 13) and has been grouped with items provoking raddoppiamento fonosintattico, the strengthening process that in Italian varieties and Italo-Romance dialects, with different modalities, affects word-initial consonants in sandhi (Nespor and Vogel, 1986, Loporcaro, 1988, 1997, Repetti, 1991 among others).

In some cases, in addition, total reciprocal assimilation is attested, but the phenomenon is lexicalised and therefore does not concern nan, as respectively shown in (21) and (22):

(21) Total reciprocal assimilation (lexicalised)
[sum ’ mɑːkka] < su in vɔkkɔ
   up in mouth “on the mouth”
[lum ’ mɛrŋa] < lu ’ mɛrŋo
   DEF.ART.M.SG winter “the winter”
[lam ’ mɔltʃa] < la ’ mɔldʒa
   DEF.ART.F.SG envy “the envy”
Labiodental fricatives following non undergo voicing if voiceless and, if voiced, undergo optional total assimilation, as shown in (23):

\[
\begin{align*}
\text{(23)} & \quad \text{non } \varepsilon t\varepsilon & \rightarrow & \text{non } v\varepsilon t\varepsilon \\
& \quad \text{not do: IND.PRS.1SG} & \quad \text{\"I do not do\"}
\end{align*}
\]

\[
\begin{align*}
\text{non } v\varepsilon j\varepsilon & \rightarrow & \text{no } v\varepsilon j\varepsilon, \text{nam } v\varepsilon j\varepsilon \\
& \quad \text{not want: IND.PRS.1SG} & \quad \text{\"I do not want\"}
\end{align*}
\]

Finally, in Teraman, nasals may strengthen following fricatives, as exemplified in (24) where lexicalized (24a) and synchronically active cases (24b,c) are illustrated:

\[
\begin{align*}
\text{(24) a. } & \quad \text{in } \varepsilon t\varepsilon & \rightarrow & \text{im } v\varepsilon t\varepsilon & \rightarrow & \text{mb} v\varepsilon t\varepsilon \\
& \quad \text{in face} & \quad \text{\"opposite\"}
\end{align*}
\]

\[
\begin{align*}
\text{(24 b.} & \quad \text{non } g\varepsilon r\varepsilon & \rightarrow & \text{na } g\varepsilon r\varepsilon \\
& \quad \text{not open: IND.PRS.1,3SG,3PL} & \quad \text{\"I do not open\"}
\end{align*}
\]

\[
\begin{align*}
\text{(24 c.} & \quad \text{non } s\varepsilon t\varepsilon & \rightarrow & \text{non } z\varepsilon t\varepsilon & \rightarrow & \text{non } d\varepsilon t\varepsilon \\
& \quad \text{not know: IND.PRS.1SG} & \quad \text{\"I do not know\"}
\end{align*}
\]

Nasal assimilation phenomena then, determine the surfacing of further phonologically conditioned allomorphs. Summarizing, non may surface as [non]\textsuperscript{13}, [nna] or [nn] depending on the phonological context that follows. As sketched in (16), [nna] surfaces before heterosyllabic clusters, geminate consonants and palatal glides, [nn] surfaces

\textsuperscript{13} [non], depending on the rate of speech and on idiolectal characteristic of the speaker, may also surface with no vocalic nucleus, namely like [n\varepsilon]. The two allomorphs are in free distribution given that their surfacing is in no way related to the segmental context and that they are interchangeable: substituting one allomorph with the other yields in any case grammatical strings. As this contribution is mainly devoted to the study of the influence of the phonological context on the phonetic shape of the negative adverb, abstraction will be made from this kind of allomorphy. All that will be said about the contexts in which [non] surfaces will also concern [n\varepsilon].
before unstressed vowels whereas [næn] surfaces before single consonants and tautosyllabic clusters. Actually, this latter, depending on the quality of the consonant that follows it, surfaces as [næm], before bilabial obstruents, [næn] before velar obstruents, [næŋ] before labiodental obstruents, or [næ] followed by a geminate deriving from total assimilation of [n] before sonorants and optionally before /v/.

### 4. A government-based analysis of the allomorphy of næn

Among the various allomorphs of næn that are determined by the segmental context and that have been illustrated in the previous sections, the forms in which the final nasal displays the place of articulation of the following consonant or undergoes total assimilation do not require further analysis: they are ordinary cases of phonologically conditioned allomorphy. The unification of the place of articulation of a consonant cluster, an adjacency effect, is a cross-linguistically very common state of affairs: phonological primes travel from one segment to another. The shift from the allomorph [næn] to [nnæ] (or [nn] before unstressed vowel) on the contrary, although determined by a clearly identifiable phonological context, cannot be easily motivated having traditional phonological theories as framework of reference: by positing a basic form [næn], it could be argued that an epenthetic [æ] arises between the final [n] and following heterosyllabic clusters or geminates in order to avoid a triconsonantal cluster. On the basis of such account, however, the deletion of internal schwa would remain a mystery, as it would in the case of the surfacing of pre-vocalic [nn]. Why would the form [næn] undergo syncope before an unstressed vowel? In traditional phonological theories no internuclear communication is allowed for, exception made for cases of harmony, metaphony and the like. By positing a basic form [nnæ], or [nn] after having undergone elision, on the other hand, schwa deletion and its simultaneous insertion geminate-internally before single consonants and tautosyllabic clusters are scarcely justifiable. In addition, schwa insertion geminate-internally clashes with basic tenets of orthodox generative phonological theory such as Geminate Integrity (Kenstowicz and Pyle, 1973). Accordingly, the different allomorphs must be stored in the lexicon because there is no sensible way to connect them to the same underlying representation. The identification of a phonological context that drives the surfacing of one allomorph over another, however, hints to a phonologically conditioned allomorphy.

In Government Phonology frameworks in general, as illustrated in Section 2, the positions in which [æ] surfaces in the negative adverb and the phonological context that follows can be straightforwardly related. The negative adverb,
a function word devoid of a full nucleus able to receive stress, is arguably a clitic and constitutes with its host a single governing domain. Lateral relations holding among nuclei in the phonological string constituted by the negative adverb and its host are clearly responsible for the pattern observed. CVCV therefore is the suitable background in which to frame an analysis of such data.

Having CVCV as a Government Phonology framework of reference, I propose to represent the negative adverb as a sequence of C and V positions where the C positions are linked to the melody corresponding to [n] whereas the vocalic positions are empty, as illustrated in (25).

(25) CVCV
    \n    n

The representation in (25), in CVCV, corresponds to that of a geminate /n/. For ease of exposition I will henceforth refer to this representation as nVnV. In CVCV the vocalization of each of the V positions depends on lateral relations entertained by nuclei. In the case at hand, it depends on the governing abilities of the nucleus that follows the negative adverb in the phonological string, that of its host. The first nucleus of the host, typically a verb, will have different governing abilities depending on its being empty or fully expressed. This in its turn depends on what segment the initial phonological string of the host consists of. The next sections will examine the different possibilities in detail.

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14 Lowenstamm (1999) proposes that an empty CV unit is present at the beginning of every lexical word, although in some languages it can be inert, and that this CV unit may accommodate clitics. Scheer (2004: 485) argues, on the other hand, that this CV unit is distributed on a parametric basis. These proposals account for the difference between languages that, in word-initial position, only allow for clusters of obstruents followed by a sonorant (TR) and languages that also allow for clusters of sonorants followed by an obstruent (RT). In Scheer’s view, which I am following here, the former have a CV unit, whose empty nucleus requires governing, distributed at the beginning of the word while the latter do not. Teraman is a particular instance of TR language, as it does not allow RT clusters but it allows partial and full geminates at the beginning of the word. Being a TR language, an empty CV is therefore present at the beginning of lexical words.

15 No floating melody needs to be represented on empty nuclei if schwa is the only epenthetic vowel in Teraman, as I am assuming here; in this case empty nuclei are filled through language specific epenthesis when their ECP is not satisfied. If schwa turns out not to be the only epenthetic vowel of the language, a lexical encoding of melody will have to be considered. This however does not bear on the analysis proposed.
4.1. Verbs beginning with single consonants and tautosyllabic clusters

In verbs starting with a single consonant, be that epenthetic or lexical, the first nucleus is a full vocalic nucleus. As such it may govern the preceding empty vocalic position, namely the last nucleus of the nVnV string. This nucleus then remains silent and cannot govern the preceding vocalic position, which, as a consequence, vocalizes yielding in surface the allomorph [nan]. This is exemplified in (26a, 26b) where lexical and epenthetic consonants are respectively illustrated. The same allomorph surfaces with verbs beginning with tautosyllabic clusters. This is because although such clusters are spaced out with an empty nucleus, this nucleus is buried by Infrasegmental Government. The first full nucleus in the string is therefore enabled to extend its governing ability beyond the buried nucleus to the final V position of the adverb16, yielding [nan] in surface, as illustrated in (26c).

(26)  

a. Single lexical consonant (having undergone postnasal voicing)

```
\[ \begin{array}{c}
Gvt & Gvt \\
C & V & C & V & V \\
\hline
\hline
nan & d & e \\
\end{array} \]
```

"s/he does not have"

b. Single epenthetic consonant (having undergone postnasal fortition)

```
\[ \begin{array}{c}
Gvt & Gvt \\
C & V & C & V & V \\
\hline
\hline
n & e & n & g & e \\
\end{array} \]
```

"s/he is not"

c. Tautosyllabic clusters (having undergone postnasal voicing of the first member)

```
\[ \begin{array}{c}
Gvt & Gvt \\
C & V & C & V & C & V & V \\
\hline
\hline
n & e & n & g & r & e & f & o \\
\end{array} \]
```

"s/he does not grow"

---

16 This account may be refined in a way that it respects the principle of locality (Brun-Trigaud and Scheer, 2010). This issue has no bearings in the case at hand. Nuclei followed by domains of Infrasegmental Government receive Proper Government on any account.
4.2. Heterosyllabic clusters and intrinsically long consonants

In the lateral theory CVCV, heterosyllabic clusters and intrinsically long consonants are represented with an empty nucleus enclosed between the two C positions. In the case at hand, when verbs begin with an intrinsically long consonant or a heterosyllabic cluster, the empty nucleus enclosed in between the consonants needs governing because the consonants at hand may not contract a relation of Infrasegmental Government, as illustrated in Section 2. Failure of establishing Infrasegmental Government between the two consonants results in the need of the empty nucleus enclosed between them to be governed by the following nucleus. The latter, then, cannot extend its governing power to the final empty V position of the negative adverb, which accordingly is neither governed, nor enclosed in a domain of IG nor is it domain final\textsuperscript{17}. The vocalization of the last vocalic nucleus of the nVnV string is therefore mandatory because its ECP is not satisfied. Once this nucleus is vocalized, however, it governs the preceding nucleus silencing it so that the allomorph [nnø] surfaces, as exemplified in (27):

\begin{equation}
\begin{array}{cccc}
| & | & | & | & | & | & | & | \\
\text{C V C V C V C V C V C V C V} \\
\hline
n & o & f & t & r & n & g & \ \\
\end{array}
\end{equation}

In (27), the final nucleus of the negative adverb, vocalised as schwa, governs the preceding nucleus inhibiting its segmental expression. The fact that schwa, an alternating vowel, in Teraman displays governing abilities and therefore silences its preceding nucleus shows that Teraman follows a Havlík pattern of vocalisation of alternation sites.

4.2.1. Palatal glides

In (16c) it has been shown that in Teraman the palatal glide, despite being a singleton consonant, patterns with heterosyllabic clusters and intrinsic geminates.

There are several interesting data to which I would like to call attention

\textsuperscript{17} Recall that the adverb is a clitic and its final empty nucleus is not final in the governing domain.
that may shed light on the reasons why a singleton consonant patterns as a geminate in the case at hand.

According to Giammarco (1977: 1282) in Eastern Abruzzese varieties the initial palatal glide is always realised as long. Rohlf's (1966: §280), in addition, reports that Lat. LJ yields postonic [jj] and pretonic [j] in Abruzzese. However, empirical data illustrated in (28) show that the generalisation of Rohlf's and Giammarco on Abruzzese do not hold for Teraman where singleton [j] is attested in postonic position, instead of the predicted [jj]:

(28) PALEA > [ˈpæːjə] “straw”
RABIA > [ˈræːjə] “rage”
COLL(l)GE(RE) > [ˈkɔːjə] “to gather”
ALIUM > [ˈæːjə] “garlie”

Teraman then detaches itself from the general Abruzzese trend whereby palatal glides are long.

In addition, palatal glides surface as singleton consonants in all contexts where consonants are subject to lengthening in Teraman, as shown in the next section.

4.2.1.1. Palatal glides in lengthening contexts

Raddoppiamento Fonosintattico (RF), as mentioned in 3.1.1, is a phenomenon of fortition typical of some Italian varieties and some Italo-Romance dialects. In Teraman RF targets word-initial consonants after a number of words that are marked in the lexicon as [+RF]. Words such as a [æ] “to”, “at”, tre [træ] “three”, po [pɔ] “for”, nga [ŋə] “with”, nda [nda] “as, like”, among others, trigger lengthening of the first consonant of the following word. Interestingly, word-initial palatal glides in Teraman, as opposed to all other word-initial consonants, surface as singleton after [+RF] words. This is illustrated in (29) and (30):

\[18\] The data concerning the length of the palatal glide in word-initial and in word medial position and those concerning the length of the vowel that precedes the glide in word-internal position are based on an auditory perception analysis of the author.

\[19\] As a matter of fact also velar glides surface as singleton after [+RF] words Es. a. [ˈtæwærˈdæ] *[ˈtæwærwærˈdæ] “s/he’s watching” stay-ind.prs.3sg at watch-inf. However word-initial velar glides derive from loss of preceding /g/ in gw sequences. Their phonological behaviour cannot always be equated to that of palatal glides, in particular as far as the behaviour after the negative adverb is concerned.
(29) Word-initial consonants undergo lengthening after [+RF] words
   a. ˈfæ ə kæ ˈlæ > [ftækkəˈlæ] “s/he, it’s coming down”
      stay: IND.PRS.3SG at descend:INF
   b. ˈfæ ə ˈfæ > [ftæfˈfæ] “s/he, it’s doing”
      stay: IND.PRS.3SG at do:INF
   c. ˈpɔ ˈkæsə > [pɔ ˈkæ:sə] “by chance”
   d. ˈpɔ kumˈbrae > [pɔ kʃmˈbrae] “for buying”

(30) Word-initial palatal glides do not undergo lengthening after [+RF] words
   a. ˈfæ ə jɑtˈte > [ftæjɑtˈte] * [ftæjɛtˈte] “s/he’s throwing away”
      stay: IND.PRS.3SG at throw:away:INF
   b. ˈpɔ ˈjɔkə > [pɔ ˈjɔkə] *[pɔ ˈjɔ:kə] “for fun”

Palatal glides surface as singleton in yet another lengthening context: the prefixes ndra- [ndræ] and stra- [stræ] that can have as bases transitive and intransitive verbs to indicate intense and immediate action and to confer dynam-
  icity on actions (GiamaMarco, 1979: 2126), when prefixed to verbs beginning
  with a consonant, trigger lengthening of the consonant at hand (GiamaMarco,
  1977: 1260, 1979: 2126). As illustrated in (31c, 31d) word-initial palatal
  glides, as opposed to other word-initial segments exemplified in (31a, 31b),
  do not surface in the geminate form when prefixed with ndra- and stra-:

(31) a. [ndræfˈfæ] “to do on the spot”  b. [ftæfˈfæ] “to do asap”
    [ndrækˈkʃtə] “to be quick at closing”  [ftækˈkʃtə] “to close asap”
   c. [ndrækˈfætə] “to go and come back”  d. [ftækˈfætə] “to go asap”
    [ndrækˈfætə] “to be quick at throwing away”  [ftækˈfætə] “to throw away asap”

The surfacing of the palatal glide as a singleton consonant in contexts
where all other consonants are long and its patterning with intrinsically
long consonants in the context object of this analysis, are consistent with a «virtual
geminate» analysis, at least for word-initial segments. Virtual geminates,
according to Ségéral and Scheer (2001b), are segments whose phonetic length
is that of a singleton consonant but that are phonologically represented as
long segments. Their existence is convincingly argued for in Ségéral and Scheer
(2001b) and Barillot and Ségéral (2005), on the basis of crosslinguistic data.
Evidence grounding the existence of virtual geminates, underlying geminates that surface as simple consonants, comes abundantly from Somali but also from the Cologne variety of German. The geminate identity of these segments is contained in the acoustic signal but instead of being encoded in the length or melody of the segments itself, it may be read off its environment (Ségéral and Scheer, 2001b: 329). Objects that do not occur on the surface, according to Ségéral and Scheer (2001b: 313), may be incorporated into underlying representations as long as it is possible to recover their identity on the grounds of phonetic information provided by the context. The acquisition of the right representation, namely that of a long segment, they argue, is ensured by phonetic clues present in the signal different than those concerning the duration of the segment.

In the case of Teraman no phonetic clues seem to be present in the signal to ensure that word-initial palatal glides are acquired as underlyingly long. Only the lengthening contexts, where palatal glides surface as short as opposed to other segments which surface as geminates, provide a hint at the virtual geminate nature of palatal glides. These are the only contexts from which the phonological length of the segment may be read off. It is possible then that in the process of acquisition, when children are confronted to data showing singleton palatal glides in lengthening contexts, posit an underlying representation where those glides are long in word-initial position because it is more economical than to lexically mark them as resistant to lengthening. An underlying representation of word-initial glides as long, which therefore includes an empty nucleus unable to govern the preceding nucleus, would explain why a glide-initial word preceded by the negative adverb nən drives the surfacing of the [nnə] allomorph. As seen in (16b) and illustrated again for the sake of clarity with other examples in (32), [nnə] is the allomorph that precedes long segment and heterosyllabic clusters.

(32)  [nnə] surfaces before:

words beginning with heterosyllabic clusters   nən ‘fìngə
words beginning with intrinsically long consonants  nən ‘bbaːːə
words beginning with palatal glides           nən ‘jɛtːə

Palatal glides, despite being singleton from a phonetic point of view, pattern with long consonants and heterosyllabic clusters also in Standard Italian, where they select the lo allomorph, as opposed to other singleton consonants that select the il allomorph (see Marotta, 1993 for a detailed study), as exemplified in (33):
4.3. Verbs beginning with an unstressed vowel

When the negative adverb, represented as a nVnV strings, precedes a vowel-initial word, the phonological fusion of clitic and its host manifests itself by the melody of the second C position of the adverb colonizing the empty C position of the verb so that the melody of the first vowel of the verb is in the place of the final V position of the adverb. This is illustrated in (34):

(34)

The resulting surface form is [nn] where the first vowel of the verb, a full vocalic nucleus, can and does govern the V position enclosed in the geminate n, which accordingly surfaces as such.

4.4. Summary

Recapitulating the argument, it has been argued so far that the phonological representation of the negative adverb in Teraman is that of a geminate /n/, represented as a sequence of two CV units where the consonantal positions are linked to the consonantal melody corresponding to /n/ and the nuclei are empty. In the Teraman negative adverb non, a clitic, those empty nuclei are both alternation sites that vocalize according to a Havlík pattern, depending on the lateral ability of the first nucleus of its host.

5. non clustering with other clitics

This section is devoted to an illustration of the clustering of the negative
adverb nən with other clitics and to a discussion of the bearings of the phonology of clitic clusters on the analysis conducted so far.

When the negative adverb nən precedes clitic pronouns such as the direct and indirect object, the impersonal and the locative, which begin with a single consonant, it may either surface as [nən], the predicted allomorph, or it may cluster with such pronouns originating clitic clusters where the negative adverb and the clitic pronoun have coalesced in a monosyllable. This is exemplified in (35):

(35) a. nən ə > [nda]      i.e. [nda kə:ta] “I don’t believe you”
    not 2SG.OBJ.OBL
b. nən lu > [nnu]        [nnu sətʃə] “I don’t know it”
    not 3SG.M.N.OBJ
  [nnu fe] “Don’t do it!”
c. nən la > [næ]         [næ sə vəʃə] “I didn’t see her”
    not 3SG.F.OBJ
  [næ veʃə] “I don’t see her”
d. nən li > [nnə]         [nnə vəʃə] “I don’t want them”
    not 3PL.OBJ
  [nnə purə] “I don’t carry them”
e. nən ʃə > [ndʒə]        [ndʒə və dʒə] “He doesn’t want to tell us”
    not 1PL.OBJ,OBL,LOC
  [ndʒə vəŋə] “I don’t come there”
f. nən vo > [myə]         [myə sə vəʃə] “I didn’t see you”
    not 2PL.OBJ.OBL
  [myə larkənda] “I don’t tell you”
g. nən so > [ndzə]        [ndzə məʃə] “It cannot be eaten”
    not 3SG.IMP,REFL
  [ndzə ləwə] “He doesn’t wash himself”
h. nən ji > [ŋə]          [ŋə və dʒə] “He doesn’t want to tell them”
    not 3SG.PL.OBL
  [ŋə fətə] “I didn’t do it for them”

The contracted forms show degemination and progressive nasal assimilation, which provokes obstruent voicing, as in (33a) and total assimilation of coronal sonorants as in (33b-d). [m], which is not coronal, does not undergo progressive nasal assimilation. On the contrary it regresses assimilates [n] bleeding coalescence, as illustrated in (36):

(36)  [nə məne fe dʒə]      [nə məne fe dʒə] “I don’t believe you”
      not 1SG.OBJ do, IND.PRS.3SG hurt,INF
      “It does not hurt”
When a palatal glide follows the nasal, as in (35h), nasal assimilation takes place and the palatal glide leaves a trace by palatalising the nasal. In all previous cases of assimilation there is no trace left on the nasal because the assimilation involves segments that are all uniformly headed. According to Scheer (1996: 177) liquids are all A headed. The palatal glide, on the other hand, is I headed, whereas [n] is A headed (for arguments in favour of these representations of the internal structure of consonants see Scheer, 1996: 163 f). This difference of headedness is arguably the cause of the different outcome of total assimilation when the palatal glide is involved: the coronal and the palatal nasal are defined by the same set of phonological primes namely N, A, I where A heads the phonological expression representing the former while I heads the latter. The coalescence of a coronal nasal with I switches the head from A to I, yielding a palatal nasal in surface.

As mentioned above, together with progressive nasal assimilation the clitic clusters also show nasal degemination, as repeated in (37) for the sake of clarity:

(37) non to > [nd̪] [nd̪ vʊjɔ] “I don’t want you”

The melodic content of the nucleus of contracted clitic clusters is that of the clitic pronoun and it governs the preceding empty nucleus of nVnV that remains silent. The first nucleus of the negative adverb is not present in the contracted form and does not need governing: it is deleted when degemination takes place, given that, in CVCV, deletion of a C implies the deletion of a V. The contraction of the negative adverb in clitic clusters is illustrated in (38) where, although phenomena are shown in a sequential order for ease of exposition, no rule ordering is implied. Phonological phenomena apply when their environment is met (Kaye, 1995: 291).

(38) The negative adverb clustering with other clitics i.e. non læ > [nnæ]
6. Final remarks

This contribution has drawn attention to a phenomenon of allomorphy targeting a negative adverb in the Abruzzese dialect of Teramo. It has been shown that the allomorphy is phonologically conditioned and it has been claimed that the allomorphs have a single phonological representation, that of a geminate /n/ where the empty nuclei are alternation sites. Those empty nuclei are vocalized whenever their ECP is not satisfied. Such an analysis is possible only if phonological constituent structure is represented as a monotonic sequence of consonant and vowel positions, some of which may be empty if their ECP is satisfied. Most importantly, also lateral relations holding among segments must be allowed for, in particular Government, which is responsible for vowel/zero alternations crosslinguistically. The analysis proposed argues that the pattern of vowel/zero alternation shown by the attested surface forms [nən], [nna] and [nn] depends on the governing power of the first vowel of the verb to which the adverb cliticizes constituting a single governing domain.

The contribution to the description of Teraman of this study is twofold: on the empirical side it identifies and describes the phonological context that determines the allomorphy of $nən$ and presents other data coming from an otherwise poorly described language. On the theoretical side, in addition, it relates from a typological perspective an Italo-Romance dialect with a number of different languages characterized by vowel/zero alternations\footnote{Vowel/zero alternations in Italo-Romance dialects and Italo-Albanian dialects analyzed in terms of empty nuclei and Proper Government were also detected respectively by \textsc{Bafile} (2003) and \textsc{Savoia} (1994) in a Standard Government Phonology framework.} (cf. Section 2.1),

\begin{center}
\hspace{-1.5cm}
\begin{tabular}{ccc}
\multicolumn{2}{c}{Deletion of the first CV} & Assimilation \\
C V C V & \hspace{1cm} & Gvt \\
| | | & \hspace{1cm} & Gvt \\
\text{n $\not\in$ } & \hspace{1cm} & \text{n $\not\in$ } \\
\end{tabular}
\end{center}

The clustering of clitics involving [nən], where degemination and loss of the first nucleus of the negative adverb apply, provides further evidence as to a representation of the negative adverb as $nVnV$, a geminate /n/ intertwined by empty nuclei.
situating Teraman among the languages displaying the Havlík pattern of vowel/zero alternations. The representation of long segments as spaced out with an empty segment is an odd representation when looked at through the prism of traditional phonological theory. The Teraman data, however, provide evidence for a V position intervening in a long consonantal segment, showing that this position may be vocalized in the right circumstances. Failure to recognize the presence of a V position interrupting the long segment leads to a phonological tour de force in order to explain the syncope/epenthesis pattern recorded in Teraman.

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21 In Teraman, to the best of my knowledge, the negative adverb is the only case where a vowel alternates with zero when escaping Government. Nevertheless alternations of the French type relating schwa and e pervade the language. Es jetto ~ jatta~ “throw away-IND.P.1,3SG,3PL ~ -IND.IMP.1,3SG,3PL”, peso ~ posox~ “weight-IND.P.1,3SG,3PL, ~ -IND.P.1PL”. 


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