PARAMETRICAL VARIATION IN PROSODIC LICENSING: EVIDENCE FROM ITALO-ALBANIAN DIALECTS[1]

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0. Introduction

It is a well-known fact that many languages present epenthe-sis/syncope phenomena which are linked to the presence of final consonants. Problems arise when we attempt to account for the consonant distribution which results from such phenomena on the basis of a theory of the syllable. Thus, (a) certain sequences of word-internal consonants turn out to be impossible to predict given normal restrictions on syllable structure; (b) consonants in word-final position differ from true final consonants in that they do not obey restrictions on the segmental content of the coda and appear not to have any influence on the length of the preceding vowel. In particular, the alternations which result from the presence or absence of a vowel segment in a given context, and which appear to give rise to resyllabification, cast doubt on the predictive power of the restrictions on syllable structure (cf. for example the discussion in Harris 1992). It is clear however that any theory of the syllable which aims at a significant degree of explanatory adequacy must start by assuming a prosodic structure inalterability criterion. From this point of view the theory of syllabic constituents (cf. Kaye, Lowenstamm & Vergnaud 1990) and the principle of prosodic licensing, p-licensing (cf. Charette 1991, 1991/92, and especially Harris 1992), have provided a relatively restrictive framework which allows us to account for the main phenomena in a way that does not conflict with the principle of prosodic structure preservation: the syllabic constituent structure

1 I wish to express my gratitude to Rita Manzini e Luigi Rizzi for their comments and suggestions. However, I am specially indebted to John Harris for a detailed and helpful review of a first version of this work.

In the phonetic transcription [¬] indicates an unreleased stop.

defined at the level of lexical representations will remain constant throughout a phonological derivation (cf. Kaye, Lowenstamm & Vergnaud 1990, Harris 1992). One crucial effect of this principle is that the theoretical status of syncope/epenthesis phenomena needs to be revised. In particular, if we base our argument on the structural conditions governing vowel/zero alternations in word-internal and word-final positions, it becomes possible to interpret the sequences of consonants which we observe as onsets followed by an empty, unrealized nucleus. If it is correct that lexical representations include all positions which play a prosodic role in the course of the derivation, then we must assume that an unrealized nucleus in a syncope context is present at the skeletal position level. In this case we would assume that a nucleus of this type is assigned the most reduced phonological content available, the neutral element [@], which can be phonetically interpreted in epenthesis contexts.

We will apply these ideas to vowel-zero alternation phenomena and to the conditions governing the occurrence of consonants in word-final positions in certain Albanian dialects found in Southern Italy. The dialects we will be interested in are spoken in two neighbouring villages in Lucania, Barile and Ginestra, and in S. Paolo (also in Lucania), as well as in two villages in Calabria, Falconara Albanese and Vena. The data which we will analyse come from a field survey involving native speakers. These data show socio-stylistic variation. For the purposes of this study we can refer this type of variation to the co-presence of partially different grammars in the linguistic community. We will treat the occurring socio-stylistic alternants as evidence for the proposed analysis.

2. *The descriptive and theoretical framework*

In the Albanian varieties we are considering the stress falls on one of the nuclei of the lexical base, normally the one that is furthest to the right. Its position is lexically determined and is therefore fixed, which means that it is not subject to movement when further morphological material is recursively added. The domain of the stress includes the word itself and any clitic elements: the clitic pronouns which attach to the verb and the postponed article which cliticizes onto the noun. As regards posttonic vowels situated in the domain of the word-stress we generally find the following features:

(1) a. the intermediate empty nucleus in antepenultimate stressed words is subject to vowel-zero alternation;
b. final consonants occur, normally in complementary distribution with word-internal syncope;
c. we find word-internal consonant sequences (with unreleased stops), e.g. [t¬m ðm ɟ¬m c¬t θt mt] (cf. the examples in (22), (26) and (28)) which do not conform to canonical internal clusters of the type *Cd+O*, and

which typically include homorganic nasal-obstruent, coronal-consonant and liquid-consonant clusters (homorganic nasal-obstruent clusters can also occur in initial position; geminate consonants are limited to certain dialects);

The following data from the dialect of S. Paolo illustrate these properties:

(2) *S.Paolo*
['ʎɛpur] "hare *nom./acc.*" ≈ ['ʎɛpuri] "the hare *nom.*" ≈
['ʎɛpurat] "the hares *nom./acc.*"
['ðɛçpər] "fox *nom./acc.*" ≈ ['ðɛçpra] "the fox *nom.*" ≈
['ðɛçprat] "the foxes *nom./acc.*"
['zəmər] "heart *nom./acc.*" ≈ ['zəmra] "the heart *nom.*"
['mbjeðɛm] "we gather" ≈ ['mbjiðni] "you gather"
['pic¬ɲa] "I was roasting" ≈ ['picim] "we were roasting"

It need be noticed that while [ə] is the normal phonetic result of an empty nucleus, the intermediate vowels [i ɛ] have an inflectional nature. Thus we may provisionally assume that these vowel are inserted in the course of the morphological derivation of the verbal forms. Comparison with other Italo-Albanian dialects reveals a complex range of partial differences in the extent to which processes of posttonic vowel weakening and *vowel/zero* alternation are operative in internal contexts. What this means is that the various dialects appear to be arranged on a scale in accordance with their prosodic characteristics as evidenced by a series of small but systematic divergences of a phonological and metrical kind. In this article I will try to show that this scale is only a superficial phenomenon and that it can be explained on the basis of an interaction between metrical organization and prosodic licensing. We will compare different metrical patterns showing vowel-zero alternation:

(i) in the case of the S. Paolo and Barile dialects metrical patterns are based on the licensing of empty nuclei both through the adjacency of a realized nucleus and by the parametrical setting in word-final domain;

(ii) in Ginestra and Falconara the metrical patterns constrain or exclude licensing of final empty nuclei and contrast the zero nuclei licensed through adjacency with *schwa* nuclei licensed by the metrical head.

The central idea that will be advanced here is based on the proposal discussed by Harris (1992); it seeks to develop an intuition which was implicit in the theory of constituents (Kaye 1990, Kaye, Lowenstamm & Vergnaud 1990, Harris & Kaye 1990), to the effect that the segmental content of a given position reflects its prosodic properties. In other words, the way a given position is interpreted

phonetically depends on how it fits into the prosodic structure of a given representation (cf. Harris 1992: 378). The relation between these two elements can be described in terms of licensing, as involving a head which licenses and a position which is licensed: the phonological content of a given position would thus be a question of the degree of autonomy it enjoys within the prosodic structure. Following Harris 1992, we may assume that within a given domain (within constituents, between constituents, at the nuclear or foot/word projection level) all positions are p-licensed by the head of the domain in accordance with the basic requirements of directionality and locality of the licensing relation. The phonological potential (autosegmental-licensing power) of a position reflects its prosodic status: a p-licensed position inherits a reduced ability to realize phonetic content. The head of the representation is the position that is not itself licensed at any level: in the case of a stress domain (a word), it would be the tonic nucleus, the head of the highest level of nuclear projection. As a consequence, according to the idea that the licensing relation subsumes the other intra- and inter-constituent relations, the structure preservation principle can be formulated in terms of licensing: "Licensing conditions holding of lexical representations also hold of derived representations" (cf. Harris 1992).

What seems to be the case then is that the different levels of projection corresponding to the various positions combine successively to produce the higher levels: in particular, the projection of nuclei serves as the basis for metrical structures such as the foot and the word. Assuming that this is indeed the case, the question arises of how unrealized nuclei should be dealt with. As a first step towards answering this let us return to the data presented in (2): the vowel-zero alternation as found in cases such as ['zəmər] "heart" ≈ ['zəmra] "the heart" and, more generally, the conditions governing word-internal syncope such as that in ['pic¬ɲa] "I was roasting" can be accounted for in terms of the absence or presence of a licenser for the intermediate empty nucleus:

(3) a.

O	N	O	N	O	N
x	x	x	x	x	x
z	ə	m	@	r	a
p	i	c	@	ɲ	a

b.

O	N	O	N	O	N
x	x	x	x	x	x
z	ə	m	@	r	Ø
p	i	c	i	m	Ø

S.Paolo

The empty nuclei of a lexical representation, shown as [@], must be realized phonetically if they are not licensed. The licensing of empty categories involves general principles regarding the status of final consonants and the occurrence of unrealized nuclei (cf. Charette 1991, Kaye 1993).

(4) a. i. **P-licensing of empty positions**
An empty nucleus has no phonetic realization if it is
- properly governed (right-to-left),
or
- in final position, given an appropriate parameter setting (Charette 1991).

ii. **Proper Government**[2]
An empty nucleus is properly governed by an adjacent nucleus with segmental content

iii. **Final empty nucleus parameter**
A final empty nucleus is licensed: yes

b. i. **Syllabification of final consonants**
A final consonant is syllabified as an onset

ii. **Coda Licensing**
A `coda' must be licensed by an immediately following onset (Kaye 1990);

In this way the distributional restrictions illustrated in (3) may be interpreted as an effect both of (4)a.i, which demands that an unrealized nucleus should be licensed by an adjacent realized nucleus, as in (3)a, or alternatively that it should be in final position and thus licensed by an appropriate parameter setting, as in (3)b, and of (4)b, which requires the final consonants to be associated with the onset position in (3)b.

A particular issue is raised by the presence of [i ɛ] in 'epenthesis' contexts, cf. ['pic¬ɲa] ≈ ['picim] in (3). We have already observed that the cases where an empty position receives [i]- or [ɛ]-content can be treated as the result of a word formation process working in the lexicon. This proposal is in agreement with the idea that root-level alternants are morphologically interpreted in the lexicon and, consequently, root-level morphological composition is invisible to phonology (cf. Kaye 1993 and Harris 1994). Thus we would assume that [i ɛ] ≈ ∅ alternation is not an effect of the p-licensing of empty positions. The relevant point is that the

2 The current definition of 'proper government' takes into account the unlicensed status of the adjacent nucleus. As a matter of fact, however, the pertinent property of a unlicensed nucleus is the fact that it has a manifest segmental content.
As for the notion of 'government', we can assume that 'government' designates the particular instantiation of licensing which holds in local domains. i.e. intra- and inter-constituent domains.

representations in (3) are also assigned a full interpretation in the terms of the constraints in (4): that is, the distribution of zero- and [ɛ i]-nuclei appears to manifest the requirements on the p-licensing expressed in (4).

In conclusion, then, straightforward alternations such as those in the S. Paolo dialect can be dealt with in terms of an adjacency relation between nuclei at the relevant level of projection. However, middle nuclei in antepenultimate stressed words (proparoxytones), as in the case of (3), are also licensed at the metrical levels (foot and word). The question therefore arises of how this licensing interacts with that based on adjacency or on the setting of an appropriate parameter.

3. Metrical v. nuclear projection licensing

The principal differences between various dialects concern the licensing of intermediate nuclei in antepenultimate stressed words and of empty nuclei in word-final position. On a more general level, these properties are really a question of how unstressed nuclei are dealt with and of how the prosodic relations are organized. In the Barile and Ginestra dialects this process has extended to all word-internal contexts[3] the alternations of the epenthetic sort, exemplified in (2) as regards the S. Paolo dialect. The result of this is that in these dialects prosodic organization is based on a clear difference in autosegmental licensing potential between head and recessive positions.

3.1 Nuclear relations in licensing: the case of Barile dialect

Let us first examine some data from the Barile dialect: here we find that the presence of medial [ə] in verbal and nominal inflections is reflected in a system of vowel-zero alternations (the star marks the etymological bases):

(5) *Barile*
['ʎipər] "hare *nom./acc.*" ≈ ['ʎipra] "hares *nom./acc.*" ≈
['ʎiprət] "the hares *nom./acc.*"
['ðɛlpər] "fox *nom./acc.*" ≈ ['ðɛlpra *nom./acc.*] "foxes" ≈
['ðɛlprət] "the foxes *nom./acc.*"

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3 In the Barile and Ginestra dialects, the post-tonic vowels **a *ɛ *i *u* have undergone a gradual process of weakening and neutralization which has reduced them to /ə/, e.g. ['ʎipər] < **ʎipur* "hare", ['ðɛlprət] < **ðɛlprat* "the foxes", [i 'ʃurðər] < **ʃurður* "deaf"(sing.). This process has extended to all word-internal contexts the syncope/epenthesis alternations. In the two dialects mentioned vowel reduction affects all atonic vowel positions, which accordingly show only a very limited range of vowels [i a u ə], compared to the greater variety displayed in tonic positions: [i ɛ a ɔ u ə].

[i 'ʃurðər] "deaf *sing.*" ≈ [tə 'ʃurðra] "deaf *plur.*
['diɟət] "it burns" ≈ ['diɟ¬mi] "we burn"
[' ŋgrɔhən] "he warms sthg" ≈ ['ŋgrɔhni] "you warm sthg"
['virəm] "I hang myself" ≈ ['virmi] "we hang ourselves"
['θritəm] "I am called" ≈ ['θritmi] "we are called"

A similar behaviour is exhibited by the internal /u/. In fact, when it is followed by a realized nucleus, a middle /u/ may have two different realizations: delinking or attenuated labial realization [u] (optionally, [ə]).

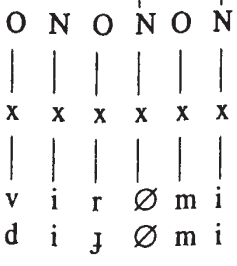
(6) *Barile*
['kuŋguɬ] "pumpkin *nom./acc.*" ≈ ['kuŋgʎa] "pumpkins *nom. /acc.*" ≈ ['kuŋgʎət] "the pumpkins *nom./acc.*"
['ndifur] "helped *sing.*" ≈ ['ndifra] "helped *plur.*"
['vɛrbur] "blind *sing.*" ≈ ['vɛrbra] "blind *plur.*"

To summarize, then, the Barile dialect allows the following possibilities as regards the distribution of vowels in posttonic positions:

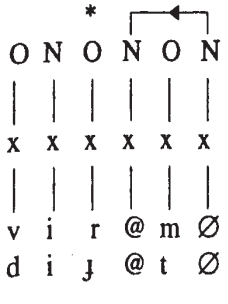
(7) a. an unrealized nucleus in word-final position.
b. an unrealized nucleus in middle position before a realized final nucleus.
c. a reduced nucleus in middle position adjacent to an empty uninterpreted final nucleus.
d. a full nucleus in middle position, allowed only in particular environments.

The vowel-zero alternating realizations which we find in ['diɟət] "it is burning", ['diɟ¬mi] "we are burning", ['virəm] "I hang myself" ≈ ['virmi] "we hang ourselves" (cf. (2) above) can be explained with reference to the absence or presence of a licenser for the intermediate empty nucleus:

(8) a.



b.



Barile

As in the case of the S. Paolo dialect, the alternation between vowel and zero realization appears to be based on the interaction between parameterized restrictions on empty nuclei on the one hand and on conditions governing the prosodic structure on the other (these conditions subtly vary from one dialect to another). In the case of

the Barile dialect the restrictions applying to empty vowel positions can be stated as follows:

(9) an empty nucleus may have no phonetic realization, (i) if there is an adjacent full nucleus on its right which properly governs it, or (ii) if it occurs in final position according to the appropriate setting of the final empty nucleus licensing parameter.

Nevertheless, as has already been suggested, an explanation based solely on adjacency relations between nuclei would not appear to be the whole story, given that the occurrence of a reduced intermediate vowel [ə] in turn gives rise to a licensing relation, which implies a sort of graded realization of the various unstressed nuclei in a given prosodic domain.

Given that a phonetically unrealized nucleus is not integrated at the metrical levels, we can formulate the restrictions relevant to the foot and word projections as follows:

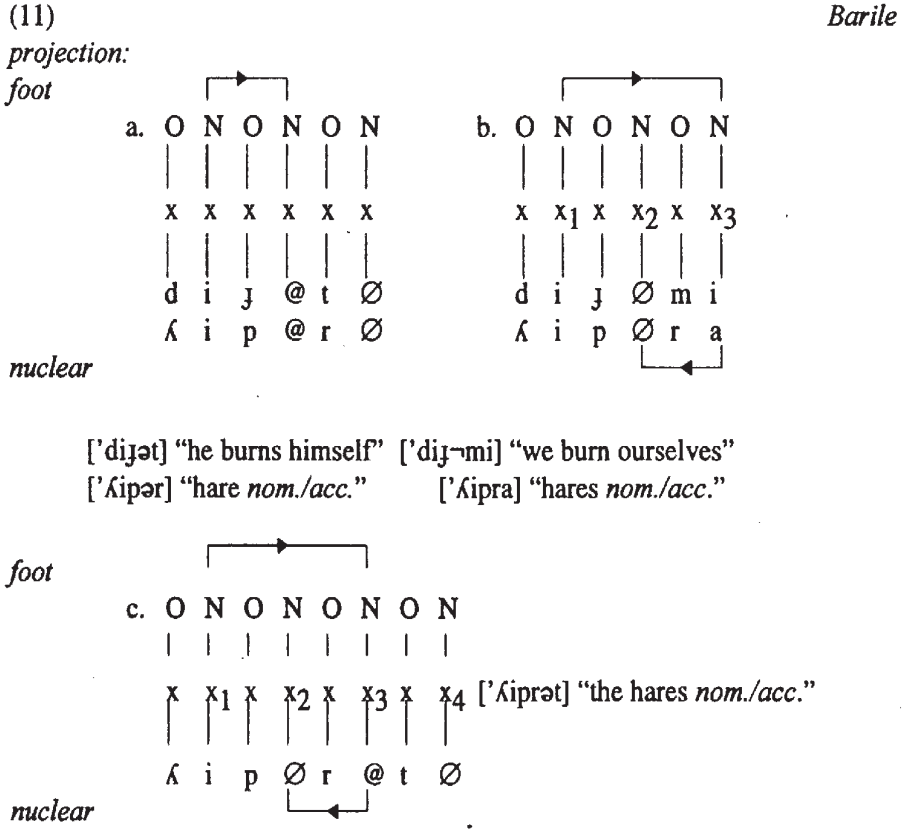
(10) a. the stressed head is lexically specified.
b. phonetically uninterpreted nuclei (as a result of (9)) are not metrically organized.
c. at the level of nuclear projection construct maximally binary right-dominant feet starting from the rightmost nucleus provided with phonological content.
d. the dominant foot within a word is the rightmost one

The conditions relative to *vowel/zero* alternation can be interpreted as manifestations of two different types of p-licensing within the prosodic domain of the tonic head. These two types of p-licensing reflect the prosodic weakness of the licensed positions in comparison with the tonic head, which displays the greatest capacity for bearing phonological content.

It is on the two types of p-licensing available for nuclear projections that the difference between an unrealized nucleus and a reduced nucleus depends: the *schwa* character of the intermediate nucleus reveals its status as a position licensed by the tonic head, from which it inherits a reduced potential for a-licensing (cf. (10)a; what distinguishes positions which are p-licensed by an adjacent position on the right, on the other hand, is the absence of associated phonological material as a consequence of (9): in this case the licensing positions are themselves p-licensed by the head of the prosodic domain (cf. (10)b. However, although the reduction in the phonological content of the intermediate nucleus is a transparent clue of the asymmetrical relation holding between licensed positions and licensers in terms of their capacity to allow phonological content, we may notice an interesting gradient effect between recessive positions. When one has 'immediate' licensing on the part of an adjacent

tonic, the recessive position receives sufficient phonological potential to allow it to a-license minimal segmental content, which in fact amounts to the element [@]. On the other hand, a final recessive nucleus licensed by the head of the prosodic domain (i.e. the stressed vowel) appears to be a very weak p-licenser, quite unable to confer any a-licensing power on another position. As a consequence, where we have a middle nucleus p-licensed by a recessive final nucleus, we will not expect the presence of any phonological material to be supported; in other words the result will be zero (on reduction phenomena, cf. Harris & Kaye 1990, Charette 1991, Harris 1992). The relevant relationships are illustrated in the following representations:

(11) *Barile*



['diʒət] "he burns himself" ['diʒ¬mi] "we burn ourselves"
['ʎipər] "hare *nom./acc.*" ['ʎipra] "hares *nom./acc.*"

We assume that an uninterpreted nucleus turns out to be invisible to the metrical structure and thus it is not projected into the foot (cf. (11)a-c). When a zero-nucleus is in an intermediate position, foot construction bypasses it. In (11)b-c the middle empty nucleus is licensed through properly government by the right-adjacent full nucleus and does not receive any phonetic content. The nuclear tonic position x_1 results to be adjacent to the nucleus x_3 at the foot-projection level thus satisfying the locality requirement for licensing relation. Consequently x_1 p-licenses x_3 and

confers the ability to support a filled melodic expression on it. In (11)c we have a more complicated case: in the word ['ʎiprət] we find two phonetically unrealized nuclei, x_2 and x_4, which of course are not included in the metrical tree. x_2 is licensed by the adjacent nucleus x_3, which is itself phonetically interpreted thanks to licensing by x_1. The empty final nucleus x_4 is licensed on a parametrical basis and is thus not itself a possible licenser[4] for a nuclear position.

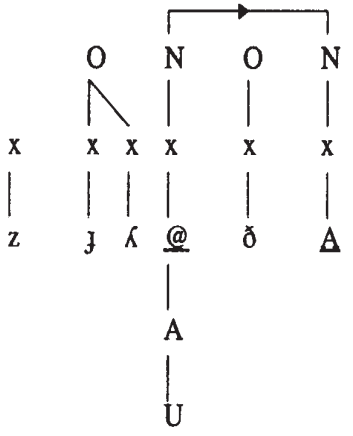
It may be useful to examine the interplay between proper government and licensing by a metrical head. Following Kaye 1993, Harris 1992 and 1994, we can assume a principle-based approach to phonology in the spirit of the minimalist program proposed in Chomsky 1992[5]. Thus, the theoretical point of view supported in this work is that the licensing constraints operate as well-formedness conditions, applying whenever their application is possible and defining structure which are preserved lexically and in output. Therefore the implementation of the licensing relations at the different levels of the prosodic hierarchy appears to meet optimality requirements on representations. Specifically, the interaction between p-government and foot/word licensing turns out to characterize possible metrical templates that fulfil general conditions on the occurrence of the nuclei in a word domain.

As we would expect, it is only tonic vowels that exhibit the full range of distinctive contrasts which the system offers, and that allow more complex realizations; in unstressed positions we only find segments composed of a single element:

4 It is worth pointing out that with all sequences involving an empty nucleus we may find in careful pronunciation that the onset character of the consonants preceding the empty nucleus is clearly brought out by the presence of a short, attenuated epenthetic element, for example [tə'ʃurðᵊra] "deaf (plur.)".

5 It need be noticed that recent phonological models as harmonic phonology (cf. Goldsmith 1990) and optimality phonology (cf. Prince and Smolensky 1993) entail a partially different approach based on principles and repair-rules. Thus, in Optimality Theory constraints are violable and output must simply meet them as strictly as possible.

(12) *Barile*



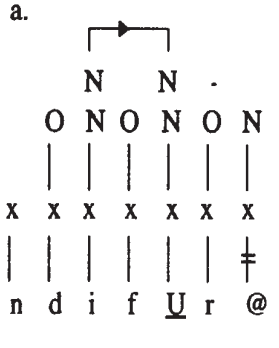
['zʒʎɔða] "I have read"

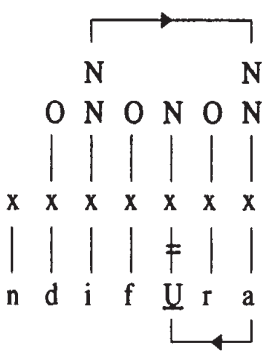
A good example of this is the case of middle /u/ in antepenultimate stressed words. Let us assume that this /u/ is present in the lexical representation and that the alternation which we find is a result of the different conditions of prosodic licensing: a posttonic /u/ retains its own phonological content if it is directly licensed by the tonic head (cf. 13)a); we observe a drastic reduction in the phonological content of the middle posttonic vowel of an antepenultimate stressed word when this position appears to be licensed by a position (the final nucleus), which is itself licensed (cf. (13)b). A specific question concerns empty nuclei. In fact since the prosodic weakness of a position derives from the prosodic relations which hold in the metrical configuration, we should expect that any given recessive position can be interpreted in terms of element decomposition (suppression). Thus we would need to generalize this interpretation also to a licensed empty nucleus: in this case reduction consists in the delinking of the whole segment al content from the skeletal position.

(13) *Barile*

projection: a. b.

foot





nuclear

['ndifur] "helped *sing.*"

['ndifra] "helped *plur.*"

Comparison of (13)b and (11) clearly shows that the metrical structure does not incorporate the intermediate position of a antepenultimate-stressed lexical representation when the word final nucleus is phonetically interpreted. Thus we find that weak nuclei, i.e. *schwa*, in pretonic position are included in the metrical structure at the level of the word-tree and p-licensed by the tonic head (cf. [pəʃ'trɔɲ] "I cover"), whereas weak middle nuclei between the tonic head and a realized final nucleus are excluded by a restriction implicit in (10)a:

(14) A stressed nucleus is always penultimate in its domain.

In addition, as a licenser, an unstressed final vowel is not sufficiently powerful to bestow any phonological content on the middle position (this explains the delinking in (13b)).

It is interesting that an unrealized empty final nucleus appears to be capable of p-licensing a consonant head under certain conditions. Thus an empty final nucleus is a possible licenser for a consonant head, cf. ['kʎuməʃt] "milk" ≈ ['kʎumʃti] "the milk" (see discussion in Charette 1991, 1991/92). This property is lexicalized in the case of forms such as:

(15) [i 'ʎɔft] "tired *sing.*" ≈ [tə 'ʎɔfta] "tired *plur.*" *Barile*

In such cases we find that an intervening weak vowel is not allowed and that the first consonant must therefore be associated with a coda position in the lexical representation.

It can be frequently observed that in languages displaying syncope phenomena the occurrence of an unrealized empty nucleus is linked with the licensing of the contiguous consonantal positions. Thus, in the dialects we examine show different solutions depending on whether an empty nucleus follows a complex onset or a sequence of coda+onset, as we will see in greater detail later on.

3.2 Licensing on the basis of metrical properties: the case of Ginestra dialect

In the Ginestra dialect we find a somewhat different phonological organization. Processes associated with the domain of the tonic head, that is to say the weakening of posttonic vowels and the reduction of unstressed vowels in general, have resulted in a phonological system based on the *vowel/zero* alternation, which is superficially similar to what we find in Barile dialect. Nevertheless, there are a number of small differences, which offer scope for an illuminating comparison: in Ginestra dialect we find a prosodic organization which reveals a different set of choices in areas subject to parameterization, as for example the licensing of unrealized final nuclei and weak middle nuclei.

From the point of view of the prosodic structure, the first striking feature is the heavy restriction on word-final consonants: generally speaking empty nuclei in final

position are not licensed and must therefore be given a phonetic interpretation and realized as [ə]. Our data exhibit a typical pattern of stylistic variation between internal zero and full nuclei, as illustrated in the following examples:

(16) *Ginestra*

['ʎipərə]/['ʎiprə] "hare *nom./acc.*" ≈ ['ʎipra] "hares *nom./acc.*" ≈ ['ʎipərtə] "the hares *nom./acc.*"

['ɟarpərə] "snake *nom./acc.*" ≈ ['ɟarpra]/['ɟarpəra] "snakes" ≈ ['ɟarpərtə] "the snakes *nom./acc.*"

['mikərə]/['mikrə] "beard *nom./acc.*" ≈ ['mikəri]/['mikri] "the beard *nom.*" ≈ ['mikərnə] "the beard *acc.*"

[tə ʃ'kurtəra]/[tə ʃ'kurtra] "short *plur.*"

['diɟa] "I burn myself" ≈ ['diɟətə] "he burns himself" ≈ ['diɟ¬mi] "we burn ourselves

['ŋgrɔhənə] "he heats" ≈ ['ŋgrɔhni] "you heat"

['virŋənə]"they hang" ≈ ['virənə] "they hang themselves"

The exemplified variation is systematically observable in verbal forms:

(17) *Ginestra*

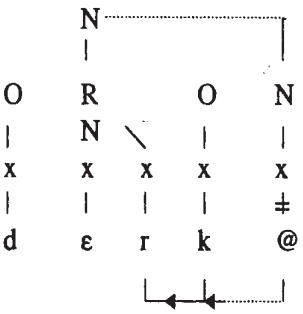
a. ['diɟ¬mi] ≈ ['diɟəmi] "we are burning" *present(active/middle)*
   ['diɟ¬ni] ≈ ['diɟəni] "you are burning"
   ['ŋgrɔhmi] ≈ ['ŋgrɔhəmi] "we are warming (ourselves)"
b. ['dɔc¬təmə] ≈ ['dɔɟətəmə] "we have roasted" *perfect*
   ['ɣik¬tətə] ≈ ['ɣikətətə] "we ran away"

The alternants like ['ɟarpəra], ['diɟəmi], etc. in (16)-(17) support the idea that a realized vowel in final position is an insufficient licenser for a position on its left, with the consequence that an empty nucleus need be phonetically interpreted. As we will see, the second possibility can be explained in terms of conflicting p-licensing principles.

The comparison with Barile dialect brings out as a crucial point that in Ginestra the licensing of final empty nuclei is restricted to a particular context: the licensing domain of an onset head. What we find is that final empty nuclei are allowed after a sequence of *coda+onset*, as in [dɛrk] "pig", [bukk] "bread", [kə'miʃʃ] "shirt", [muʃk] "mule" (all *nom./acc.* forms). We should perhaps view this as being connected with the fact that in this same dialect, when we have licensing of a word-internal coda position, the following unstressed nucleus preferably remains unrealized, cf. ['dɛrðəmi] ≈ ['dɛrðmi] "we throw", ['ʃtrəmbətənə] ≈ ['ʃtrəmp¬tənə] "they wrung". As we will see in section 3.2, in the case of *coda+onset* sequences the unrealized empty nucleus seems to be still capable of

authorising the consonant head to license the preceding rhymal complement. This fact would appear to suggest that the failure to realize the final nucleus is to be attributed to the prosodic properties of the dialect, rather than simply to a partial application of the "Parameter of empty final nucleus licensing". What we should probably conclude then is that in these contexts the prosodic potential of the final nucleus is interpreted by the prosodic properties of a coda-onset domain. If this hypothesis is correct there is no need to assume that the nucleus is parametrically licensed in the final domain, in the sense that the presence of a licensing relation between the two consonants in [..VCC0] somehow supplants the need for the final N to be phonetically expressed. We may simply admit that a consonantal government domain is a metrically sufficient interpretation of the prosodic content of the final licensing nucleus. This would suggest that the metrical structure could take account of this consonantal domain as an interpretation of the prosodic potential of the final nucleus (this relation is indicated in (18) by dotted lines).

(18) *foot* *Ginestra*



[dɛrk]

coda-onset domain

Clearly then what we are dealing with is not so much the segmental content that may be associated with the position as the realization of the prosodic potential of this position: metrical systems may allow the prosodic potential of an empty nucleus to be interpreted by consonantal domains which include it as a potential onset-licenser. It must be noticed that lexically specified [..CCV] sequences do occur in which a final full vowel [i a u] is realized, cf. ['dɛrku] "the pig", ['bukka] "the bread", ['ɣɛrða] "I came", ['ʃtrəmbi] "he wrung". The contrast with the conditions illustrated in (18) is clear: in the cases with a phonetically interpreted final nucleus the rich autosegmental content (lexically assigned) identifies a prosodically autonomous position which simply must be metrically licensed by the foot/word head. On the contrary in [..VCØ] sequences the final empty nucleus is not preceded by a consonantal domain available for interpreting its prosodic potential, and it is not capable of licensing a preceding empty nucleus[6].

6 Some variability in the realization of the final schwa characterizes the careless pronunciation related to fast speech styles: in this case a zero vowel or a reduced schwa

Indeed, it does seem that recessive final nuclei display a reduced capacity to authorize empty nuclei on their left, as is shown by realizations such as ['mikərə] "beard/mint *nom./acc.*", ['ʎipərə] "hare *nom.acc.*", ['cɛnətə] "the dogs *nom./acc.*", [mə'sałənə] "the tablecloth *acc.*", ['fɔʎənə] "he speaks". What this suggests is that in a configuration with two empty posttonic nuclei all the weak nuclei are controlled by the tonic nucleus and metrically organized. As a reflex of this, the independent prosodic properties of the final empty nucleus are not sufficient to allow it to p-license a position on its left. A greater capacity for p-licensing middle empty nuclei appears to be present in unstressed final nuclei which are assigned lexicalized phonological content, as in ['mikri] *mik@ri* "the beard/mint *nom.*" and ['ʎipra] *ʎip@ra* "hares *nom./acc.*", where autosegmental properties are capable of implementing prosodic properties not dependent on the tonic head[7].

Furthermore, we find that syncope occurs systematically in forms such as ['ʎipərtə], ['mikərnə] with three posttonic nuclear positions: thus we have licensing of an intermediate empty nucleus by a final vowel that is p-licensed at word level. In these cases we can interpret syncope as a last resort strategy which comes into operation when we have an excessively long sequence of recessive nuclei that the tonic nucleus cannot control. This seems to imply that a metrical template is imposed that excludes sequences with three or more posttonic nuclei.

We may account for the prosodic properties of the Ginestra dialect by simply modifying the restrictions that we have posited for the Barile dialect. We will thus need to modify them in two respects: first of all, as regards the treatment of final empty nuclei, and secondly in respect of the status of recessive positions vis-à-vis the metrical organization. In Ginestra dialect they turn out to be included in the metrical projections at both foot and word level:

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may be realized. However, the crucial point is that the informants know that a final schwa is present in the string. This is shown by the fact that the informants are able to repeat the same item with or without a clearly perceptible final schwa in relation to the stylistic properties of the utterance.

7 In general, the prosodic structure of the Ginestra dialect resembles that of the Romance dialects in the surrounding area of north Lucania, where we find: final vowel nuclei, weakening of post-tonic vowels to *schwa*, vowel-zero alternation in antepenultimate stressed words (which point to a non-metrical value for the middle nucleus). Correspondences with the Lucanian dialects characterize both the phonological and the morphosyntactic structures of the Ginestra dialect (cf. Savoia 1993). Certain features, such as diphthongization in tonic vowels, or, to take a syntactic example, the particular system of causatives, seem to have become established in the Ginestra dialect as a result of 'contact' between Albanian and Romance dialectal types.

(19) a. An empty nucleus may have no phonetic realization if: (i) it is licensed by an adjacent full nucleus on its right (ii) if it is in final position and preceded by a consonantal domain.

b. A possible metrical template excludes posttonic sequences of three or more phonetically realized nuclei

c. Full nuclei are metrically organized in maximally binary left-headed feet starting from the rightmost nucleus and consistently with the lexically specified stressed head.

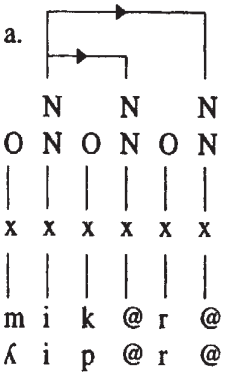
d. Full nuclei which are metrically unorganized at foot level are incorporated in the word tree as recessive positions.

These two types of licensing are illustrated in the configurations in (20): thus we have licensing by the prosodic head from left to right and licensing of an empty head by an adjacent nucleus from right to left (in these cases the direction is shown by the arrow underneath the representation). In the case of licensing by the stress domain head, the locality requirement appears to be fulfilled at each metrical (foot/word) level.

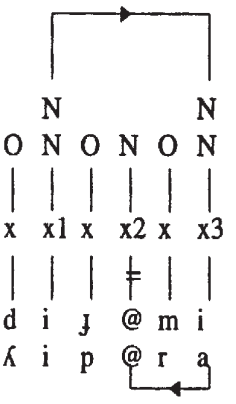
(20) *Projection*: *Ginestra*

word
foot

a.



b.



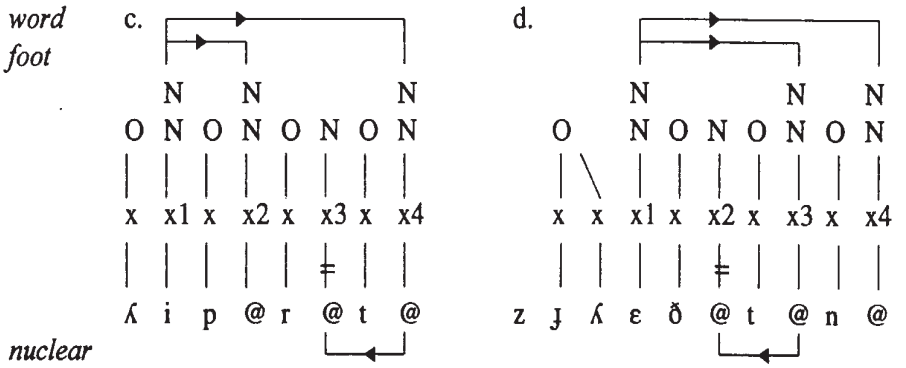
nuclear

['mikərə] "beard"

['diɟ¬mi] "we are burning (ourselves)"

['ʎipərə]"hare" *nom/acc.*

['ʎipra] "hares" *nom/acc.*



['ʎipərtə] "the hares" *nom/acc.* ['zʒʎɛθtənə] "they read"

Comparison of (20)c and (12)c brings out the different prosodic organization of the Ginestra dialect. The crucial feature appears to be the lack of final uninterpreted nuclei: the middle nucleus is p-licensed by the final nucleus, which itself is associated with the word-level projection and licensed by the stressed nucleus. In this way, the middle empty nucleus can remain phonetically unrealized and is not included in the metrical organization. Thus in this dialect syncope is generally only used where we have prosodic structures with three nuclei following the head nucleus. In such cases there are two metrical options, each involving a single foot constructed on x_1 and the first full nucleus on its right. The final nucleus is associated with the word-level projection, while an intermediate nucleus is p-licensed by the adjacent nucleus and can thus remain without phonetic content. The choice between the two possible solutions appears to be lexically determined, in the sense that for example verbal forms generally require the metrical template shown in (20)d.

The status of an empty nucleus in pretonic position is not clear: it may be 'proper government' licensed by the tonic nucleus to its right, in which case it will remain without phonetic realization, or else it may be licensed by the tonic nucleus in the word-level prosodic domain. These two possibilities naturally lead to two different results: zero in the first case and a reduced vowel in the second case, cf.['zʒɔɲənə] ≈ [zə'ʒɔɲənə] "they wake up", [və'rɐŋ] ≈ [vrɐŋ] "I look", [ðə'birja] "I was losing/getting lost".

At this point of our analysis, the data we have examined suggest that we should recognize different directions in the licensing relation at the different projection levels. In fact the type of *syncope/epenthesis* alternation we observe in these systems support a crucial distinction between p-licensing by an adjacent position, which operates from-right-to-left, and p-licensing by the foot/word head, which operates from-left-to-right. Naturally, in this latter case it would only be natural to expect the

licensing directionality to reflect the left-headed character of the foot in these dialects. As we can see, moreover, the adjunction of a pretonic recessive nucleus to the word-tree appears to represent a special case which triggers leftward p-licensing.

4. Government-licensing as a gradient property

4.1. Government-licensing in the S. Paolo dialect

We will now proceed to analyse the government-licensing (g-licensing) properties of empty nuclei. Generally, in order for an onset to be able to p-license a preceding coda the onset needs to be g-licensed by a full nucleus. However, we find cases where an onset-head seems to be g-licensed by an empty licensed nucleus. As shown by Charette 1990, 1991/92, the conflict between g-licensing and 'proper government' of an empty nucleus exhibits a parametric character which gives rise to different possibilities. Thus, when p-licensing of empty nuclei is the dominant principle we typically find processes of onset segment deletion (cf. Charette 1990, 19919). On the other hand, g-licensing itself seems to involve a type of parameter setting, in the sense that certain languages allow a p-licensed uninterpreted nucleus to g-license a preceding onset-head (e.g. this is the case of the Polish, cf. Charette 1991/92). In the Albanian dialects which we examine here we encounter competing outcomes involving subtle differences which reflect the interaction of the g-licensing principle with both onset-to-onset licensing and the metrical relevance of consonant clusters.

In the case of dialects where word-final empty nucleus licensing is the chosen option, we have seen that these uninterpreted nuclei can act as licensers for preceding onset-head domains (cf. (21)). In the case of Ginestra, another parametrical principle is involved: the p-licensing potential of the final nucleus manifests itself through the licensing relation between the onset and the preceding coda, as in (21)a. In both cases the a-licensing potential of the onset position is preserved:

(21) a. Ginestra [zbarð] "I whiten", [dɛrð] "I̱ throw", [muʃk] "mule"
b. Barile [i 'barð] "white", [zɟʎɛð] "I read", [miʃt] "the flesh"
c. S. Paolo ['hɔʎc] "he flung", [dɛrð] "I throw", [muʃk] "mule"

All the dialects analysed show word-internally licensed empty nuclei in the presence of a preceding onset-head, even though the results may differ for case to case because of the different metrical properties of each representation.

Let us first consider government-licensing effects in the S. Paolo dialect:

(22) a.

['həŋgər] həŋgər@ "he ate"
[dɛrð] dɛrð@ "he threw"
['hɔʎc] hɔʎc@ "he flung"

b.

['dɛrða] dɛrð+a "I threw"
['zbarða] zbarð+a
"I whitened"
[u 'ɟənda] ɟənd+a "I lay"
['hɔʎca] hɔʎc+a "I flung"

c. *S.Paolo*

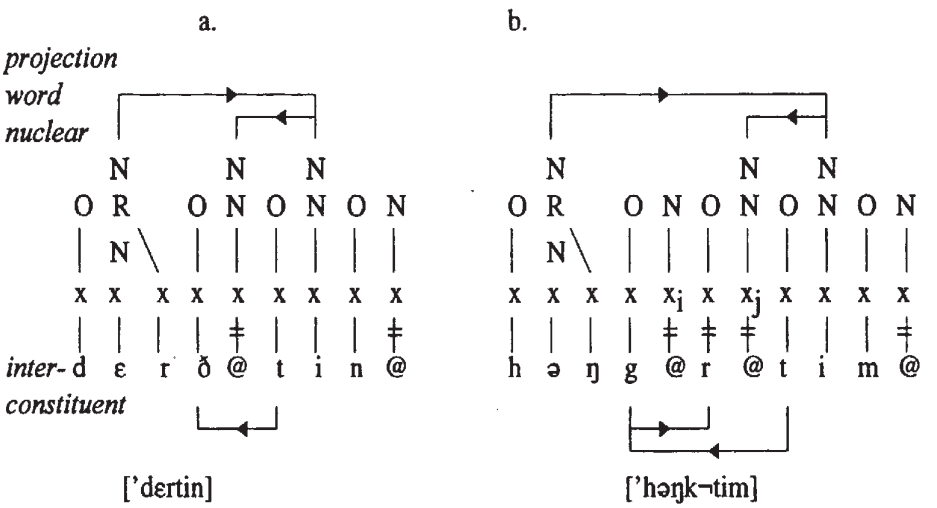
['həŋgra] həng@r+a "I ate"
['həŋk¬tim]_['həŋrtim] ≈ ['həŋtim]
həŋg@r@+ti+m@ "we ate"
['dɛrtin] dɛrð@+ti+n@ "they threw"
['zbarɲɛm] zbarð@+ɲɛ+m@ "we whiten"
['zbartim] zbarð@+ti+m@ "we whitened"
['ɟənmi] ɟənd@+mi "we lie"
['ɟənʃa] ɟənd@+_+a "I was lying"
[u 'ɟəntim] ɟənd@+ti+m@ "we lay"
['hɔʎtim] ≈ ['hɔʎc¬tim] hɔʎc@+ti+m@
"we flung"
['kəmvɛt] ≈ ['kəmb¬vɛt] kəmb@+vɛ+t@
"to the feet"

Thus onset-heads can be p-licensed by a following licensed empty nucleus (be it licensed in word-final position or by means of an adjacent full vowel in internal position). The alternating forms in (22) show the prosodic mechanism which is at work: in the representations (22)a-b all nuclei are manifested except for the final one, which is parametrically licensed and thus unable to license a preceding empty nucleus. (22)c exemplifies the usual structures in which an empty uninterpreted nucleus could license an onset-coda relation. In the dialect of S.Paolo the normal result is the loss of the onset-head, and the marginal variants which preserve the onset-head belong to 'lento' or formal speech styles. However, cross linguistic comparison supports the hypothesis that the prosodic domain is available for the licensing of empty nuclei (Kaye 1990, Charette 1991/92). More particularly in Charette 1991/92 a type of rightward onset-to-onset government is taken to operate in *obstruent-@-liquid* sequences, which legitimizes the uninterpreted intervening nucleus. Thus, in (22)c, ['həngra] is the typical case of syncope due to the p-licensing potential triggered by this particular licensing relation between onsets.

A prosodic system like this one allows for the licensing of empty nuclei at the nuclear projection level independently of foot/word metrical levels. In such a system we would naturally expect some reduction in the g-licensing capabilities of zero nuclei which are legitimized by adjacency (proper government). And indeed, the reduction processes represented in (22)c are consistent with this explanation: usually a non-metricalized zero-nucleus cannot g-license a preceding onset-head (cf. (23)a); in this case however the coda can be licensed by the preceding nucleus inside its intra-constituent domain. As for the inter-onset domains, the representations in (23) make manifest the fact that an onset-to-onset licensing relation is at work in the crucial cases of interaction between proper government of an empty nucleus and

government licensing of an onset. Thus first we can admit that when an empty nucleus is surrounded by two onset positions a licensing relation between the onsets can hold and that this inter-onset domain can legitimize an intervening empty nucleus. In this case Charette 1991/92 requires that it in turn is p-governed by a full nucleus. As it is shown in the representation (23)b, our data would support two crucial points: the onset-to-onset licensing can operate independently of the presence of an adjacent full nucleus; the directionality of the licensing seems to be not related to a parametrical determination.

(23) *S.Paolo*



Let us consider a representation such as *həŋg@r@tim@* ['həŋk¬tim] in (23)b including two contexts for the *onset-to-onset* relation. The reduction of a part of the phonological information, which is very drastic in the case of the alternant ['həntim], can be explained in terms of the particular kind of onset-to-onset domain displayed in (23)b. Now, the onset-to-onset licensing relation can account for the zero realization of the middle-domain empty nucleus x_i, but there is a further problem: the following properly governed zero-nucleus x_j is unable to p-license the preceding empty nucleus. Thus, as a first conclusion, in cases like this one, an onset-to-onset domain can be a sufficient context for licensing a recessive empty nucleus.

A second theoretical issue is raised by the weakness of /r/ in the onset-to-onset span. In fact the phonetic outcome suggests that /r/ has a different status from /g/ and /t/. A result as ['həŋk¬tim] illustrated in (23)b brings out the fact that /t/ can affect the segmental content of /g/ bypassing /r/; /r/ in turn cannot be viewed as the licenser for /k/, since, if so, it should be phonetically realized. In this case, /k/ would be licensed by a licensed onset with the consequence that its prosodic status would turn out to be very weak. Thus we would expect phonetic realizations such as *

['hənrtim], which on the contrary do not normally occur. The data we dispose of indicate that the default application of onset-to-onset licensing operates from left to right (cf. (24)-(25) and the discussion below). My hypothesis is that these conditions can be modified on the strength of a more fundamental principle, i.e. the asymmetry between the licenser and the licensee: the melodic expression associated with a licensed position is no more complex than the one associated with its licenser (cf. Harris 1990, 1994). Thus, a one-element compound [R] (defining /r/) is unable to license a four-element compound [@,?,h,L] (defining [g]). By consequence, in so far as licensing direction is forced to reflect the complexity asymmetry between consonantal segments in an onset domain, in *obstruent-@-liquid* sequences it is the obstruent which licenses the following liquid.

This accounts for the prosodic weakness of /r/: this position in fact is followed by a zero nucleus and licensed by an onset position which in turn is not legitimized by a full nucleus. As we have noticed, a possible result is ['hənrtim], where the whole onset-to-onset domain remains unrealized as a consequence of the fact that the consonants involved do not respond to the p-licensing requirement. Now, if we exclude constituent re-association of segmental content in derived representations on the basis of the structure preservation principle, we may assume that /g/ and /r/ remain linked to their skeletal points in the structure It is useful to recall that this analysis is supported by two types of evidence: (i) the trace of the relation between the coda and onset (manifested in this case by the velar character of the nasal segment[8]), (ii) the external evidence provided by the alternants showing the missing consonants, cf. ['derða] "I threw", ['hənər] "he ate". Furthermore, we also find a different option, i.e. the preservation of /g/. This latter possibility implies that the lexical voiced onset /g/ undergoes a reduction process (cf. (23)b). The direction of this process suggests a crucial prosodic asimmetry between the two stops /t/ and /g/. Thus we should in all probability conclude that a licensing relation involving the two domain heads is triggered by delinking of /r/: in this case /g/ turns out to be visible for licensing by the following onset-head.

As has been noticed, in the same prosodic environment as devoicing we find reduction phenomena. This close relation between assimilatory and reduction effects in consonantal clusters is a well-known pattern which can be interpreted in terms of a unique phonological mechanism of element delinking (Harris 1990). Thus 'assimilatory' devoicing, unreleased obstruent realization and segmental content

8 In the *N+C* sequences that are not involved in *schwa*/zero alternation Albanian dialects present a nasal homorganic to the following consonant, cf. ['ʃtrəmba] "I wrung" ['hunda] "the nose", ['kəmba] "the foot"/[kəmb] "foot", ['ɟənda ('mirə)] "I am (well)". Indeed the coda-onset relation is subject to a further constraint requiring that the laryngeal properties of coda are legitimized by the head onset.

reduction in consonantal sequences can be dealt with as a uniform process manifesting the direction of p-licensing; indeed these phenomena can be viewed as offering a clear clue to the existence of a right-to-left onset-to-onset licensing relation. In fact, devoicing does not seem to be a direct effect of weakening (cf. the presence of voiced final obstruents in the example in (22)a), since in the dialects we are considering devoicing applies to the obstruents preceding a voiceless obstruent in onset position (cf. (24)a), i.e. the domain of other reduction effects:

(24) *S.Paolo*

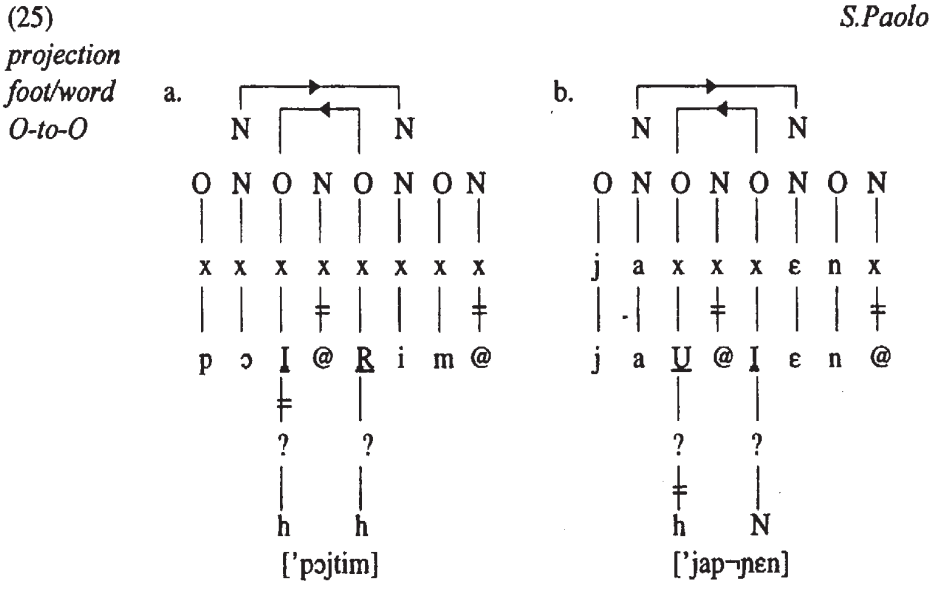
a. ['ndɔðɛn] "they lie" [u 'ndɔθtim] "we lay"
['ndɔðmi] ≈ ['ndɔθmi] "we lie"
['puθəɲ] "I kiss" ['puθɲa] "I was kissing"

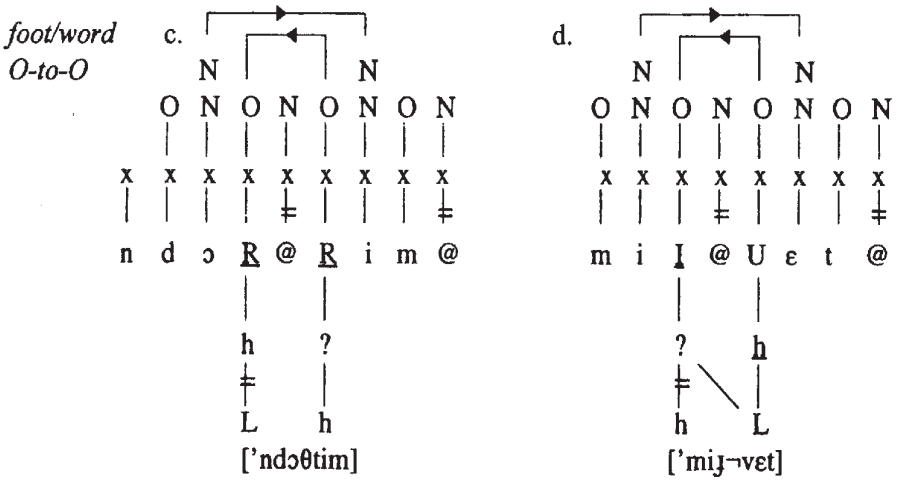
b. [jap] "I give" ['jap¬ɲɛn] "they give"
['pɔca] "I burnt" ['pɔc¬tim] ≈ ['pɔjtim] "we burnt"
[mic] "friends" [mijt] "the friends"
['miɟ¬vɛt] "to the friends"

c. [pakᵊ'zɔɲa] ≈ [pag¬'zɔɲa] "I was baptizing"

The data in (24) allow us to define the reduction pattern: (i) a licensed stop is unreleased (cf. (24)b); (ii) laryngeal identity is triggered in the case of a sequence of two obstruents and it is dependent on the laryngeal properties of the licenser onset, (24)b-c; (iii) a reduced obstruent may occur as well (cf. 24)b). The representations in (25) highlight the identity of the reduction process operating on the licensed position:

(25) *S.Paolo*





(25)a-b-c-d illustrate different lenition effects which normally relate to prosodically weak onset positions, i.e. onsets p-licensed by p-licensed positions (cf. Charette 1991/92, Harris 1992, 1994). An obvious consequence of these processes is that a less complex element composition turns out to be associated with the weak consonantal positions, in accordance with the 'complexity' requirements imposed on the governed positions (cf. Harris 1990, 1994). Thus, in an inter-onset licensing domain, the asymmetry in a-licensing ability appears to descend from the fact that the melodic potential of a licensed position is derived from the head which prosodically legitimizes it. In the cases we have observed, the lenition effect can be accounted for in terms of suppression of the 'manner' elements [h] and [?][9] from

9 Even though the discussion on the consonantal elements is still open, it might nevertheless be worth listing the relevant elements (cf. Kaye, Lowenstamm & Vergnaud 1990, Harris 1990, 1991, Charette 1991, Harris and Kaye 1990, Harris & Lindsey forthcoming):

(i) Laringeal elements					
'slack vocal chords' element	[L]				
'stiff vowel chords' element	[H]				
(ii) Manner elements					
'stop' element	[?]				
'noise' element	[h]				
(iii)Resonance elements					
cavity elements	[I]	[A]	[U]	[@]	[R]
nasal element	[N]				

The autosegmental deployment of the elements on the relevant tiers is implied in the representations. As for the element compositions corresponding to the principal

the segmental content associated with the licensed position. The reduction contexts may be schematized as follows:

(26) a. in a *voiceless stop - obstruent/nasal* sequence, cf. (24)d, the stop is unreleased, that is the release element [h] turns out to be delinked (cf. (25)b);

b. in a *palatal stop - stop* sequence, the first stop is usually vocalized through
delinking of the 'air flow' properties ((25)a);

c. in a *voiced obstruent - voiceless stop* sequence the reduction effect consists in devoicing;

d. in a *voiceless obstruent - voiced obstruent* sequence we find voice spreading (cf. (25)d).

Since in cases where a nasal is the right-hand onset, this assimilatory effect is lacking (cf. (25)b), we should be induced to assume that the element composition of the nasal does not contain an independent sonority element [L]. Thus no spreading effect is possible as a result of the licensing relation. On the contrary, laryngeal characteristics appear to be distinctive in the case of the obstruents and thus they need to be specified in terms of element composition. As regards the Italo-Albanian dialects there are good grounds for taking the voiceless obstruents to be 'neutral' segments, characterized by a lack of laryngeal specification, and, on the other hand, for taking the voiced obstruent to contain an independent sonority element [L] (cf. Harris 1994). Thus, a voiceless onset triggers an assimilatory reduction on a preceding voiced consonants.

A particular issue concerns the status of the intervening empty nucleus in a leftward onset-to-onset domain. Following the ideas set out in Charette 1991/92, we can assume that any inter-onset licensing domain can legitimize an intervening uninterpreted nucleus. This zero-nucleus seems to display its phonological potential through the consonantal domain. Thus, zero-nuclei in (25)a-d would turn out to be p-licensed both by the adjacent full nucleus and through onset-to-onset government. This could explain why in systems like the Ginestra one, which generally prevent a

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consonantal distinctions we have the following expressions where the underlined element is the head of the expression.

p [U,?,h]	t [R,?,h]	k [@,?,h]	c [I,?,h]	
b [U,?,h,L]	d [R,?,h,L]	g [@,?,h,L]	ɟ [I,?,h,L]	
f [U,h]	θ [R,h	s [R,h]	ʃ [I,h]	x [@,h]
v [U,h,L]	ð [R,h,L]	z [R,h,L]	ɣ [@,h,L]	
m [U,?,N]	n [R,?,N]	ŋ [@,?,N]	ɲ [I,?,N]	

full nucleus from 'proper government' licensing a preceding empty nucleus in internal position, weak nuclei can remain uninterpreted in an onset-to-onset domain.

4.2. G-licensing as a derivative property: the case of Barile and Ginestra dialects

As one would expect, in the Barile dialect the systematic use of licensing based on adjacency or parameter setting overcomes government licensing requirements, inducing the massive application of syncope in internal contexts. In this case uninterpreted nuclei appear to partially maintain their ability to government-license an onset-head, in this respect matching the government-licensing power of licensed final empty nuclei. Actually these government-licensing properties are not uncontroverted, as is clear from the fact that contextual restrictions exist. Let us consider the relevant data from Barile:

(27) a. ['həŋgri] həŋg@r+i "he ate" *Barile*
['u 'həŋgər] həŋg@r@ "he ate himself"
['derði] derð+i "he threw"
['u 'derð] derð@ "he threw himself"
['zbarða] zbarð+a "I whitewashed"
['ʃtrəmbəm] ʃtrəmb@+m@ "I wring"
['ɟəndəm] ɟənd@+m@ "I lie"

b. ['derðmi] derð@+mi "we throw"
['zbarðmi] ≈ ['zbarmi] zbarð@+mi "we whitewash"
['həŋk¬təm] ≈ ['həŋtəm] həŋgr@+t@+m@ "we ate"
['dertən] derð@+t@+n@ "they threw"
['derʃa] derð@+ʃ+a "I was throwing"
['zbartəm] zbarð@+t@+m@ "we whitewashed"
['ʃtrəmmi] ≈ ['ʃtrəmb¬mi] ʃtrəmb@+m@ "we wring"
['ʃtrəmtəm] ≈ ['ʃtrəmp¬təm] ʃtrəmb@+t@+m@ "we wrung"
['ʃtrəmʃa] ʃtrəmb@+ʃ+a "I was wringing"
['ɟənmi] ≈ ['ɟənd¬mi] ɟənd@+mi "we lie"
['ɟəntən] ɟənd@+t@+n@ "they lay"
['ɟənʃa] ɟənd@+ʃ+a "I was lying"

c. [stər'puɲdʒuɬ] st@rpuɲdʒuɬ@ "lizard"
[stər'puɲdʒɬi] st@rpuɲdʒuɬi "the lizard"

As the alternants in (27) illustrate, syncope in these cases is induced by an unlicensed final nucleus and conflicts with the government-licensing of an onset-head (cf.(27)b-c). We find examples of two competing possible outcomes of this

conflict. Thus in spite of the zero-nucleus the onset may preserve its ability to license the preceding coda, as in (27)b. Alternatively we may simply have the 'loss' of the governing onset as a consequence of the fact that it is not government-licensed by the zero-nucleus, as in (27)a (Charette 1990, 1991) (the phonetic realization also presents a perceptible syllabic boundary in the case of two homorganic consonants, e.g. ['ʃtrəm$mi] "we wring"). This second possibility seems to rule out any chance that g-licensing ability of the uninterpreted nuclei is involved. Thus, we should probably conclude that the observed variation proceeds from two possible options:

(i) the intermediate nucleus is licensed by a following full nucleus;

(ii) the intermediate nucleus is licensed through onset-to-onset licensing.

In the former case the governing onset does not meet the licensing requirement and can not be interpreted as licenser; in the latter case, on the other hand, the governing onset turns out to be g-licensed. A crucial role appears to be played by the quality of the consonants. Beside the *consonant-liquid* domain, exemplified by ['həngri], we find that a leftward licensing inter-onset relation is triggered when the consonantal segment is preserved. In this case leftward assimilatory/reduction effects on the onset-licensed consonant are determined by the same reduction mechanisms we have already defined (cf. (23), (25) and (26)) for S.Paolo dialect. The typical results include an unreleased realization of the former stop in the *stop-stop* sequence, and, in the case of a lexically voiced obstruent followed by a voiceless one, the loss of the sonority element [L] in the licensed obstruent. The syncope contexts which do not involve g-licensing offer the same phonological conditions as S.Paolo:

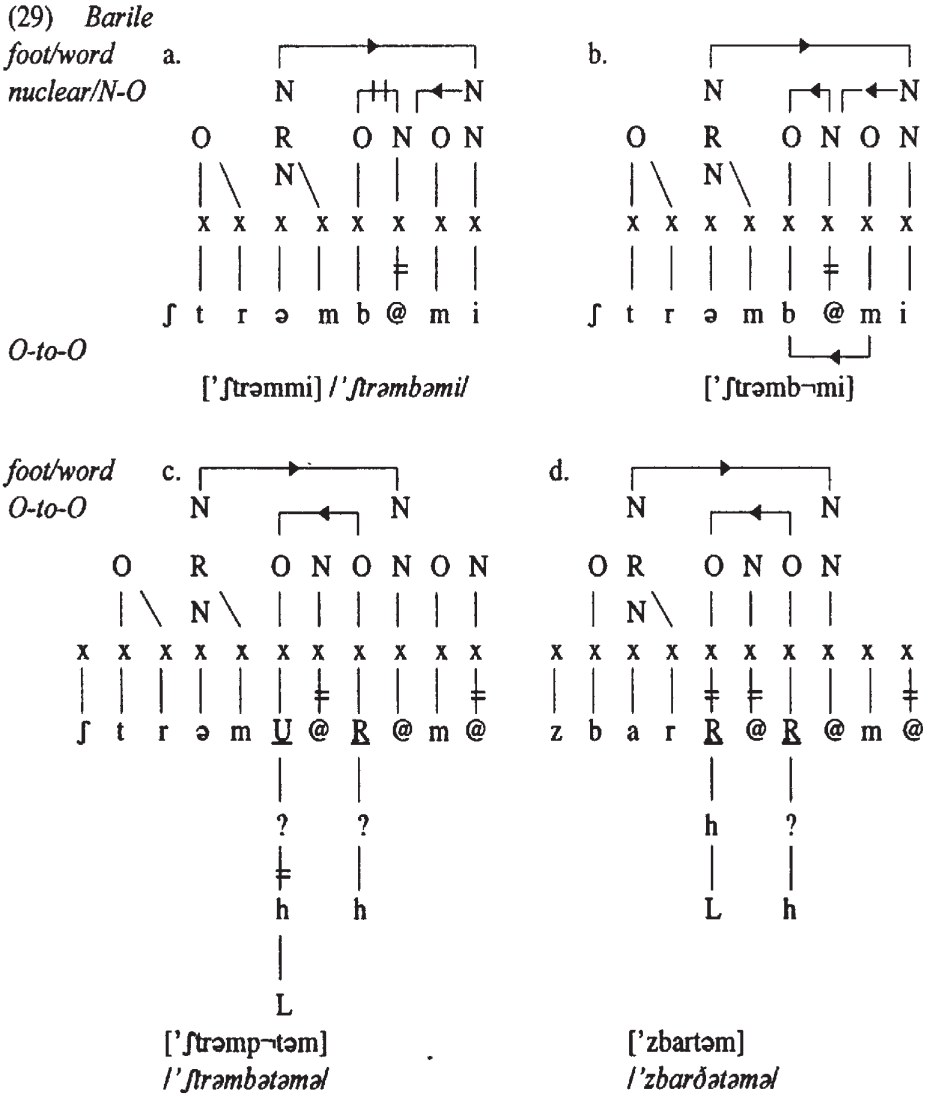
(28) [mbʎɛð] mbʎɛð@ "I gather" *Barile*
['mbʎɛðmi] mbʎɛð@+mi "we gather"
['mbʎɔða] mbʎɔð+a "I gathered"
['mbʎɔθtən] mbʎɔð@+t@n@ "they gathered"
['pIca] pic+a "I burnt"
[pIc¬tən] ≈ ['pIjtən] pIc@+t@+n@ "they burnt"
['cɛpəm] cɛp@+m@ "I sew" ≈ ['cɛp¬mi] cɛp@+mi "we sew
['cɛp¬təm] cɛp@+t@+m@ "we sewed"

As regards the g-licensing contexts, comparison of a certain amount of data suggests that the differing results (segmental reduction v. disassociation) are in fact due to the different consonantal properties. While generally reduction effects involve devoicing and the loss of release, however the `loss' of the first consonant becomes obligatory when in a derivative context the two onsets share the resonance and noise elements [R,h] (i.e. when they are both obstruents), as in ['ɟəntən]

ʒənd@+t@m@, ['zbartəm] *zbarð@+t@m@*. Following an idea of John Harris (personal communication) we could see this process as an OCP effect.

In conclusion, the variation exemplified in (27) can be explained in terms of the parametrical differences in the licensing properties of the positions:

(29) *Barile*



As we have noticed, the governing onset segment in (29)a may not be interpreted as licenser because it is not itself g-licensed by the p-licensed zero-nucleus. In this case this segment does not meet the licensing requirement and we find the disappearance of the consonant. The configurations in (29)c-d illustrate the onset-to-

onset domain effect: the intermediate empty nucleus is sanctioned independently of licensing by the following full nucleus (we find again alternants as ['həŋtəm] *həŋgr@+t@+m@* "we ate"); in (29)c the loss of the release and voice elements of the lexical voiced obstruent reduces the complexity of the licensed position; in (29)d the sharing of the resonance element triggers the delinking of the whole element-expression associated with the licensed position. In any case an inter-onset domain legitimizes the governing onset.

The data from the Ginestra dialect present subtle differences vis-à-vis those we have just examined from the Barile dialect, differences relating to the specific metrical organization of the nuclei.

(30) a. ['həŋgri] həŋgr+i "he ate" *Ginestra*
['dɛrði] dɛrð+i "he threw"
[u 'derð] derð@ "he threw himself"
['ʃtrəmba] _trəmb+a "I wrung"
[ju 'zdɔrʄ] zdɔrʄ@ "she brought forth"
['ʄənd+a] ʄənd+a "I lay"
['cɛʎbənə] cɛʎb@+n@ "it stinks"

b. ['həŋk¬təmə] ≈ ['həŋgrətəmə] həŋgr@+t@+m@ "we ate"
['dɛr ðmi] ≈ ['dɛrðəmi] derð@+mi "we throw"
['ʃtrəmbəɲənə] ≈ ['ʃtrəmb¬ɲənə] ʃtrəmb@+ɲ@n@ "they wring"
['ʃtrəmbətənə] ≈ ['ʃtrəmtənə] ≈ ['ʃtrəmp¬tənə] ʃtrəmb@+t@+n@ "they wrung"
['zdɔrʄətənə] ≈ ['zdɔrc¬tənə] zdɔrʄ@+t@+n@ "they brought forth"
['ʄəndəmi] ≈ ['ʄənd¬mi] ʄənd@+mi "we lie"
['ʄəntəmi] ʄənd@+t@+mi "we lay"
['cɛʎp¬tənə] ≈ ['cɛʎbətənə] cɛʎb@+t@+n@ "they stank"

Realizations such as ['zdɔrʄətnə], ['ɣerðətmə] "we came" and so on, with proper-government of the empty nucleus preceding the final one, is also possible, even though it is not the preferred solution; the reason for this may be that an onset-to-onset relation involving a *t+nasal* sequence is avoided wherever possible in accordance with a general restriction on the consonantal clusters (cf. Kaye, Lowenstamm & Vergnaud 1990, and the discussion in Rice 1992). In the syncope contexts the usual reduction effects can be observed. The examples in (31) illustrate the re-adjustement phenomena which surface in sequences of two consonants (devoicing (31)a, reduction (31)a-b-c or loss (31)c of the manner properties):

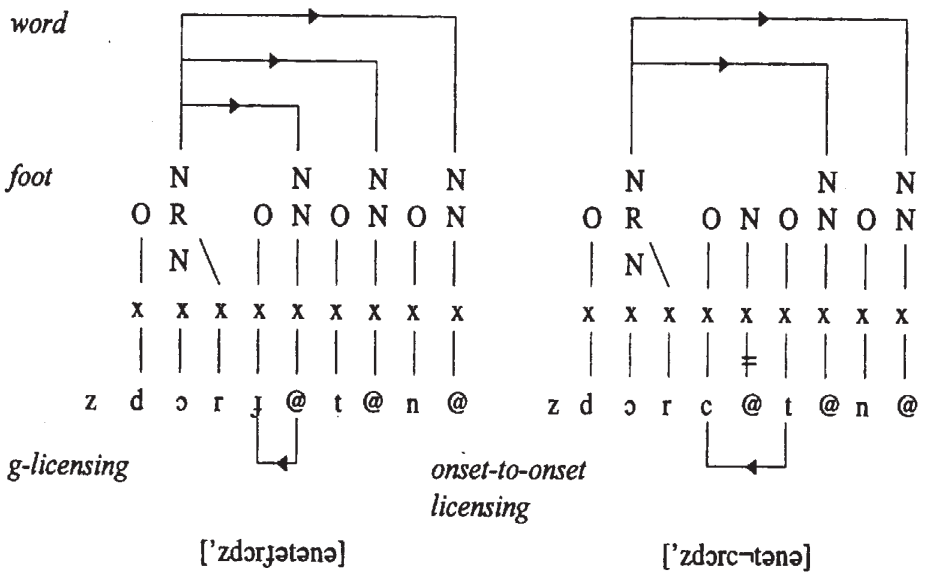
(31) a. ['dɔc¬təmə] ≈ ['dɔʄətəmə] dɔʄ@+t@+m@ "we roasted" *Ginestra*
['mbʎɔθtəmə] ≈ ['mbʎɔðətəmə] mbʎɔð@+t@+m@ "we picked up"

b. ['diɟ¬mi] ≈ ['diɟəmi] diɟ@+mi "we roast"
['picəɲənə] ≈ ['pic¬ɲənə] pic@+ɲ@+n@ "they burn"
c. ['pɔc¬təmə] ≈ ['pɔjtəmə] ≈ ['pɔcətəmə] pɔc@+t@+m@ "we burnt"
d. ['zɟʎɛðmi] ≈ ['zɟʎɛðəmi] zɟʎɛð@+mi "we read"
[,bakə'zɔnə] "he baptizes"

As we have already pointed out, the metrical organization of the Ginestra dialect shows a clear preference for metrical incorporation of recessive nuclei. The specific property of this prosodic system is that the recessive nuclei are p-licensed by the metrical head of the word domain, and consequently a central vowel surfaces which is capable of government-licensing the preceding onset, as in ['dɛrðəmi]. Thus an interpreted posttonic nucleus is associated with the word projection level. On the other hand, the option of licensing empty nuclei within consonantal domains is available as well, as the data in (30)b-(31) show (cf. (19)). We have already seen that an onset-to-onset relation can license the prosodic potential of an intermediate weak nucleus. For example, the alternants with zero-nuclei in (31) exemplify onset-to-onset contexts where an intervening empty nucleus can remain uninterpreted.

When the head of a coda-onset domain is licensed by an onset on the right, we find that complexity effects (cf. Harris 1990, 1992) surface which derive from the onset-to-onset relation and which take the form of the reduction process already observed in the case of the other dialects (cf. (30)-(31)). As a further possibility, delinking of the whole element composition from its constituent can apply. Once again this option appears to have an obligatory character if the onsets are homorganic according to a very restrictive implementation of OCP which disallows two following obstruents to share the same resonance properties. The configurations in (32) illustrate the canonical cases:

(32) a. b. *Ginestra*



['zdɔrɟətənə] ['zdɔrc¬tənə]

(32)b exemplifies the context where an onset-to-onset domain includes an intervening vowel which turns out to be licensed. In this case we can hypothesize that consonant domains might provide information relevant to the metrical organization.

In conclusion, in a system that normally limits the licensing capability of weak nuclei, we could ascribe the syncope effect to the licensing capability of the onset-to-onset domain. More generally this could mean that in this system an unstressed full nucleus is simply not a possible licenser and that zero-nuclei anyway imply a consonantal domain which legitimizes them. In final position a *coda-onset* relation is involved, while in word-internal contexts an inter-onset relation (cf. (30)b-(31)) and a *coda-onset* relation (cf. (30)b and (32)) can combine. If this is the case, we can refer the alternating forms in (30)b and (31) to two competing principles: (i) p-licensing by the metrical head; (ii) licensing through the consonantal domain. The existence of competing principle explains why systematic preservation of the internal consonant clusters, as in ['ʃtrəmp¬tənə], ['zdɔrc¬tənə] (30)b, can be found along with alternants containing interpreted weak nuclei. We may think that these different competing options can be ascribed to the parametrical variation in the licensing properties of the consonantal domain.

4.3 Further evidence from other dialects

The close links between such factors as the preservation of internal consonant clusters, g-licensing of coda-onset sequences in the final domain and the metrical

licensing of empty nuclei are confirmed by evidence from other dialects. Thus, in the Falconara system we have a metrical organization that is based on the phonetic interpretation of empty nuclei and which combines licensing of final empty nuclei and the occurrence of *coda-onset* clusters in both final and internal position:

(33) a. [piʃk] "fish", [darð] "pear" *Falconara*
['ɟarpərɐ] "snake" ≈ ['ɟarpəri] "the snake"
['ɣuðərɐ] "garlic" ≈ ['ɣuðəri] "the garlic"
['θika] "the knife"

b. ['ɟɐndɐmɐ] "I lie" ≈ ['ɟɐnt¬tʃimɐ] "we were lying"
['zbarðimɐ] "we whitewash" ≈ ['zbarθtʃimɐ] "we were whitewashing"
['ʃtrɐmba] "I wrung" ≈ ['ʃtrɐmp¬timɐ] "we wrung"
['ɣɐŋgrɐ] "you ate"
['ɣɐŋgrətinɐ] ≈ ['ɣɐŋgərtinɐ] ≈ ['ɣɐŋk¬tinɐ] "they ate"
['θiknɐ] ≈ ['θikənɐ] "the knife" (Acc.)

c. ['dɔɟa] "I burnt"
['dɔc¬timɐ] ≈ ['dɔjtimɐ] "we burnt"

The instances in (33) display a systematic preservation of the consonantal domains which appears to be a striking feature of the prosodic configurations of Falconara dialect[10]. Once again the licensing of complex consonantal clusters combines with a generalized metrical interpretation of the recessive nuclear positions which are not legitimized through consonantal domains (i.e. in pretonic position, cf. [kə'puts] "shoe", in final position and in long sequences of consonants). Alternants such as ['ɣɐŋgrətinɐ] ≈ ['ɣɐŋgərtinɐ] ≈ ['ɣɐŋk¬tinɐ] "they ate" support the idea that a simple onset-to-onset relation holds between /g/ and /t/ (cf. (34)) if /r/ is not inter-onset licensed or governed by a following full nucleus. In this case /r/ is not visible for the prosodic organization. On the whole, even though a certain degree of variation is present, the data of Falconara reflect a similar organization to the one we find in the Ginestra system, showing obvious correspondences in both alternations and reduction phenomena:

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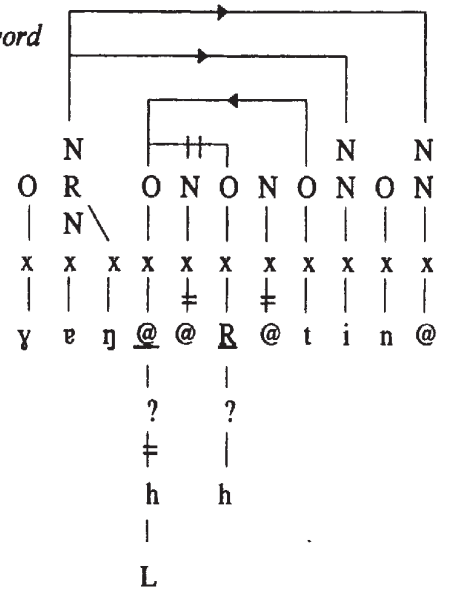
10 In fast-speech style realizations such as ['ʃtrɐmtimə] "we wrung", with deletion effects, may optionally appear. However, the crucial point remains the link which exists between the regular preservation of consonantal domains and a generalised metrical interpretation of nuclear positions.
As the examples show the final *schwa* is generally an open centralized vowel, [A,@], a phonetic realization very similar to the stressed centralized vowel.

(34) *foot/word* *Falconara*

O-to-O



['ɣɐŋk¬tinɐ]

The principal parametrical difference vis-à-vis the pattern of Ginestra is that Falconara system obligatorily requires the onset-to-onset licensing option **irrespective of the nature of the consonant sequence**. Thus we can find complex clusters like the following:

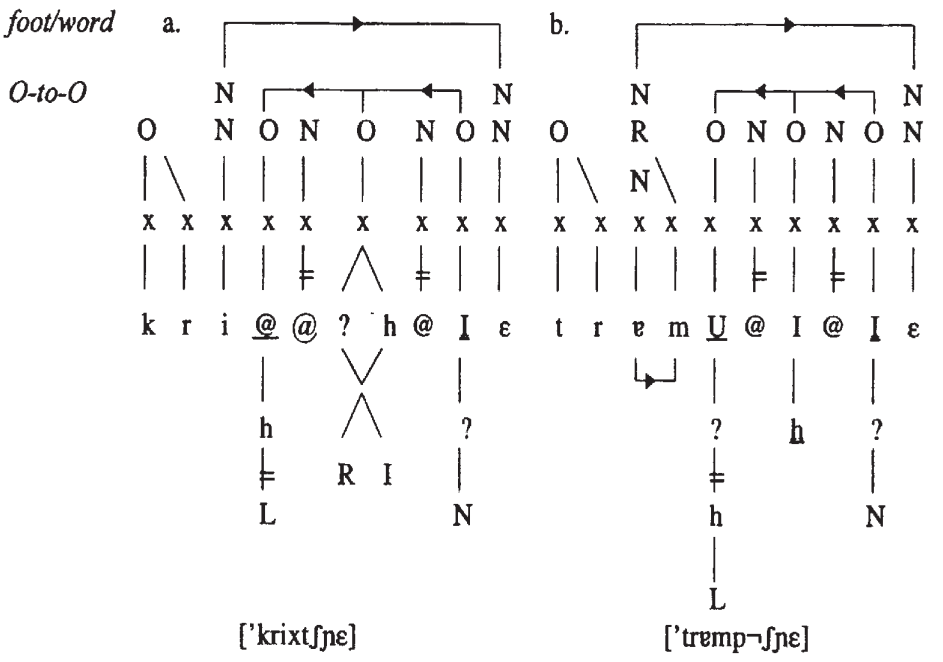
(35) *Falconara*

a. ['kriɣɛtʃɐ] "I was combing my hair"
['krixtʃɲɛ] "you were combing your hair"
['dagɛtʃ]/['dak¬tʃɲɛ] ≈ ['dak¬tʃɪɲɛ]"I was/you were getting wet"

b. ['zbarðetʃ] "I was whitening"
['zbarθtʃɪɲɛ] ≈ ['zbarθʃɲɛ] "you were whitening"
['ɟɐndətʃ] "I was lying" ≈ ['ɟɐnt¬tʃɲɛ] "you were lying"
['trɐmbəʃ] "I was afraid" ≈ ['trɐmp¬ʃɲɛ] "you were afraid"

As is readily observable, an epenthetical [ɪ] variably surfaces only in the case of a sequence of four consonants. However, inter-onset domains appear to be able to fulfil p-licensing requirements on the intervening empty nuclei and on the onset-head of coda-onset domains (cf. (36)b):

(36) *Falconara*



In fact, in (36)a the right-hand zero-nucleus could not proper government license the preceding one. Nevertheless a consonantal position provided with segmental content appears to be allowed to onset-to-onset license another consonantal position in cases where an empty nucleus intervenes in the domain. In the case illustrated in (36)b the intermediate empty nuclei turn out to be licensed inside a consonantal domain. As a consequence intra-constituent government will play a crucial role in legitimising the preceding coda /m/, even though there may be reasons for thinking that /p/ onset may inherit a partial g-licensing ability from the licenser of the consonantal domain, that is all things considered from the final full vowel. Both (36)a and (36)b show a reduction process operating on the left-hand onset.

According to the theory of licensing inheritance (Harris 1992: 384), the a-licensing potential of a skeletal position is either a direct property of the position or a property derived from another position. Thus the degree of metrical autonomy of a position and its related capability of licensing prosodic positions manifest themself in terms of melodic richness of the associated expression: e.g., only a filled expression normally can have the role of metrical domain head. In the cases

exemplified in (36)a,b a licensed onset can itself be a licenser just because it is phonetically interpreted.

Finally, in the Vena dialect we observe that the prosodic arrangement reflects a different parametrical option, amounting to the avoidance of uninterpreted nuclei in any internal context. Thus only the word-final domain is capable of legitimising, even if variably, empty nuclei. The result is that a *schwa* systematically surfaces in all internal contexts:

(37) *Vena*

a. ['kuŋguç(ə)] "gourds *nom./acc.*" ≈ ['kuŋguçətə] "the gourds *nom./acc.*"
['ɟarpərə] "snake *nom./acc.*" ≈ ['ɟarpəri] "the snake *nom.*" ≈ ['ɟarpəratə] "the snakes *nom./acc.* "
['krumiʃtə] "milk *nom./acc.*" ≈ ['krumiʃti] "the milk *nom.*" [tə ʃ'kurtura] "short *plur.*"

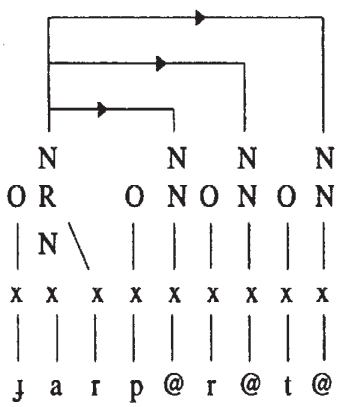
b. [drɔθ] "he threw" ≈ ['drɔða] "I threw" ≈ ['drɔðənə] "they threw"
[di'ɛk] "I burn" ≈ [di'ɛgəmə] "we burn"

c. ['ðambəɲənə] "they ache"

Devoicing in the final domain (exemplified in (37)b) manifests a weakening effect ascribable to the p-licensed status of the onset (cf. Harris 1992). This lenition appears to be a relic of a former metrical organization based on vowel-zero alternation, which holds in the most conservative dialects. As in the case of Ginestra I will assume that in Vena dialect the metrical organization of the highest nuclear projection levels involves incorporation of the all nuclear positions in the word-tree:

(38) *word* *Vena*

foot



['ɟarpərətə]

Thus all nuclei end up being legitimized by the nuclear head of the metrical configuration; the nuclear reduction effect enforced by adjacency-licensing is thus avoided. The only trace to be found of the old organization is the possibility of

having final empty nucleus licensing, in which case an uninterpreted nucleus will not be metrically organized.

5. Conclusions

Our data suggest that in the prosodic treatment of empty nuclei there is a basic contrast between systems which admit licensed empty nuclei and systems which exclude them. This basic difference produces a crucial split between two types of prosodic arrangement. On the one hand the systems that allow p-licensing of the empty nuclei differentiate between full nuclei, which are associated with the highest prosodic projection (foot and word), and phonetically uninterpreted nuclei, which are licensed either under `proper government' by an adjacent nucleus (which must have phonetic content) or else parametrically, in a word-final context. In such a system uninterpreted nuclei will remain metrically unorganized, given that they are invisible for the metrical domains of foot or word, which by their very nature are only capable of computing positions that are assigned some phonological content (see the discussion in Charette 1991). Those systems, on the other hand, that exclude or restrict the licensing of empty nuclei are compelled to associate all realized nuclei with a word-tree.

As for the status of the prosodic relations within a metrical domain (cf. 3.2.), the treatment proposed here does not necessitate extrinsic ordering of any component of the theory with respect to any other. In fact we assume that p-licensing relations based on adjacency of the two positions at the nuclear projection level, or determined by a final domain, interact freely with the p-licensing by a foot- or word-head. Their interaction specifies possible well-formed metrical structures.

The distinction between p-licensing by the metrical head and p-licensing by an adjacent position or on the basis of a parameter setting, is reflected in the surface realization: in the first case the a-licensing potential inherited from the stressed head is rich enough to sanction an almost *schwa*-like vowel; the second case is the typical context in which we find a zero realization. On a narrow view of the p-licensing principle `licensing an empty nucleus' could be seen as a case of delinking phonetic content from a p-licensed weak position. Following the uniform characterization of licensing relations presented in Harris 1992, we have been able to deal with the notion of `proper government' as a derivative effect of the p-licensing gradation in a prosodic representation. Taking the argument a stage further, we have discussed the possibility that a coda-onset cluster influences the metrical organization of a sequence of positions. A second hypothesis we have tentatively argued for is based on the idea that uninterpreted nuclei can be skipped over by licensing relations between onsets and that the onset-to-onset domain can capture the licensing potential of the empty nucleus. Thus we have grounds for thinking that relations which hold at the level of the metrical projection map internuclear and onset-to-onset domains onto the timing organization of the sequence.

The principal source of prosodic differences is the treatment of the empty nuclei. In fact Ginestra and Falconara dialects relate syncope phenomena and the lack of a final vowel to the type of consonantal context, while S.Paolo and Barile dialects display a systematic vowel-zero alternation based on the licensing ability of the unstressed nuclei. This observed variation seems to reflect the parametric nature of the licensing properties of the prosodic positions, and this may be summarized in the scheme (39):

(39)	S.Paolo	Barile	Ginestra	Falconara
final nucleus licensing	+	+	±	±
'proper government'	+	+	±	±
g-licensing by empty nuclei	–	±	+	+
consonantal domain licensing	+	+	+	+

(± indicates the existence of specific restrictions)

As we can see in the different grammars nuclei exhibit a different ability to license: only in S.Paolo and Barile dialects nuclei show a full capacity to properly govern; an important cut in (39) corresponds to internal g-licensing. Thus in Ginestra and Falconara dialects the licensing of internal positions (empty nuclei and codas) crucially involves coda-onset and onset-to-onset domains; in S.Paolo and Barile dialects the g-licensing power of the nuclei is the relevant principle.

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