# Complementary distribution of Metaphony and *Raddoppiamento Fonosintattico* in plural nouns in Airolano

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## Table of contents

1. Introduction ..... 4
2. The dialect of Airola ..... 6
2.1 Geography and classification of the dialect ..... 6
2.2 Vowel system and vowel reduction ..... 7
2.3 The definite article ..... 10
2.4 Nouns ..... 12
2.5 Metaphony ..... 13
2.6 Raddoppiamento Fonosintattico ..... 16
2.7 Summary ..... 18
3. Data ..... 20
3.1. Methodology and participants ..... 20
3.2 Results ..... 21
3.3 Metaphony and RF ..... 25
3.4 Conclusion ..... 26
4. Analysis ..... 27
4.1 CVCV and Element Theory ..... 27
4.1.1 CVCV Theory ..... 27
4.1.2 Element Theory ..... 28
4.2 Metaphony as demotion of |A| ..... 30
4.2.1 Demotion of |A| (Maiden 1991) ..... 30
4.2.2 Analysis ..... 33
4.3 RF within CVCV Theory ..... 38
4.3.1 RF in CVCV Theory ..... 38
4.3.2 Analysis ..... 39
4.4 Metaphony and RF in complementary distribution ..... 42
4.4.1 Metaphony and RF in complementary distribution ..... 42
4.4.2 Analysis ..... 42
4.5 Conclusion ..... 46
5. Other and previous analyses ..... 48
5.1 Metaphony ..... 48
5.1.1 Sluyters (1988) ..... 49
5.1.2 Nibert (1998) ..... 49
5.1.3 Calabrese (2011) ..... 50
5.1.4 Walker (2011) ..... 51
5.2 Raddoppiamento Fonosintattico ..... 52

5.2.1 Leone (1962) ..... 53
5.2.2 Fanciullo (1986) ..... 53
5.2.4 Nespor & Vogel (1986) ..... 54
5.2.5 Repetti (1991) ..... 55
5.2.6 Bullock (2000) ..... 56
5.2.7 Borrelli (2002) ..... 58
5.3 Conclusion ..... 60
6. Conclusion & Discussion ..... 62
Bibliography ..... 65
Appendix 1 ..... 69
Appendix 2 ..... 72

# 1. Introduction

In the southern Italian dialect of Airola (Campania) feminine plural and masculine plural are distinguished by means of two phonological processes: metaphony and *Raddoppiamento Fonosintattico* (RF henceforth). They appear to be in complementary distribution and to create gender distinction in the plural of nouns; in fact, metaphony takes place in masculine plural forms, while RF marks feminine plural ones. Therefore, two distinct phenomena, one being phonological, namely metaphony, and one being phono-syntactic, namely RF, happen to interact within plural noun formation. These two processes, which developed separately, acquired, synchronically speaking, a value of gender distinction.

Metaphony is a well-known phenomenon of Italian dialects, which consists in the raising or diphthongization of a stressed vowel under the influence of a non-adjacent following high vowel (Rohlfs 1966, Fanciullo 1994, Ledgeway 2009, Maiden 2010). In the dialect of Airola, it only affects mid vowels, namely /ɔ, o, e, ɛ/, and its attestation is not limited to the nominal class; it occurs, in fact, in various word categories, such as adjectives, verbs and possessive pronouns.

RF is an external sandhi phenomenon which consists in the gemination of a word-initial consonant under the influence of a preceding word (Rohlfs 1970, Leone 1984, Loporcaro 1997, Borrelli 2002). In Airolano RF is lexically triggered, differently from the RF attested in Standard Italian, which occurs to be stress-induced.

The aim of this thesis is to describe the two phenomena, metaphony and RF, in Airolano and to give an analysis of them in order to explain their division of labor. To do so, the processes are first analyzed separately. Then, a unified analysis is elaborated aiming to shed some light on the difference between genders in the plural of nouns.

The analysis of the two phenomena will be based on data from Airolano that were collected in December 2013 and April 2014 by the author.

Ten informants were selected, which were classified into four different age groups. All the recordings were, subsequently, transcribed in IPA and they appear in this form in the text. The full set of data is stored in the Italian Dialect archive of Leiden University.

This thesis is structured in four chapters and a conclusive section.

The first chapter begins with information regarding the area in which Airolano is spoken (section 2.1). Afterwards, in 2.2, a description of the vowel system of the dialect and its reduction is given. Then, in 2.3 and 2.4, the nominal class and the definite articles are

described. Subsequently, in 2.5 and 2.6, metaphony and RF affecting the dialect are presented.

In the second chapter, the methodology for the collection of the data is described; participants are presented (in 3.1), and the results of the newly collected data are described (in 3.2 and 3.3).

In the third chapter, the analyses of metaphony and RF are presented. Firstly, in 4.1, the frameworks on which the analyses are based, namely Element Theory and CVCV Theory, are outlined. Secondly, in 4.2 and 4.3, the analyses of the processes are elaborated. Thirdly, in 4.4.1, the distribution of the two phenomena is observed and, in 4.4.2, a unified analysis of them is carried out.

In the fourth chapter, an outline of previous and alternative analyses of the two separate processes of metaphony and of RF will be given.

In the last section, the conclusion, the main points and findings of the research will be summarized and some space will be given to discuss of the problematic aspects of the analysis and to hypothesize about some possible further research.

# 2. The dialect of Airola

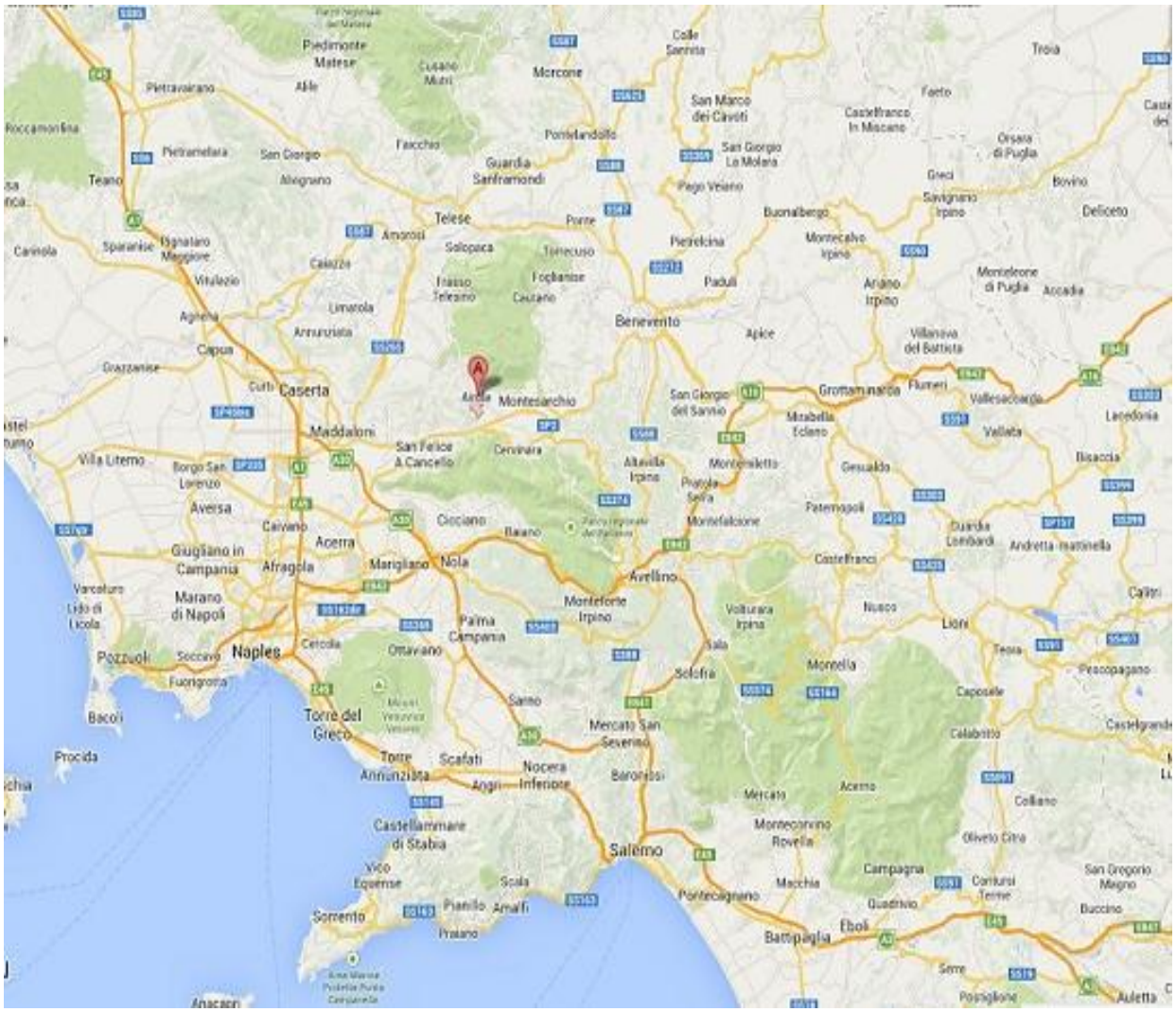
This chapter introduces the dialect of Airola and some of its aspects, that are relevant to the analyses that will be proposed. The first section, 4.1, regards some general information about the area in which Airolano is spoken. Secondly, its vowel system in relation with vowel reduction occurring in unstressed syllables is introduced. Thirdly, a brief description of the noun class and the system of definite articles characterizing Airolano follows. Finally, the types of metaphony and RF attested in the dialect are presented.

## 2.1 Geography and classification of the dialect

The dialect of Airola is a southern Italian dialect spoken in the north-eastern part of Campania. The town of Airola is located in Valle Caudina. The valley, which is part of the western part of the province of Benevento, is situated on the border with the eastern province of Caserta. Furthermore, the area adjoins the northern part of the province of Avellino (see the map on the following page).

Following the classification of Italian dialects proposed by Pellegrini (1977), the Campania region is part of the intermediate southern area and Campanian dialects can be subdivided in southern Lazio dialect, Neapolitan dialect, Irpino dialect and Cilento dialect. This classification does not take into account the dialects spoken in the north-eastern part of the region, namely the province of Benevento. This area is at the border of Campania with Basilicata, Apulia and Molise and is, therefore, a point of contact of the regional koiné with other southern Italian dialects. Furthermore, Benevento dialects diverge from the other groups for various phonological, morphological and lexical aspects, and present some characteristic traits.

The province of Benevento is composed by 77 municipalities and Airola is among those which are situated in the westernmost part of the area. The entire province constitutes, from a linguistic point of view, the least documented area of Campania and only little literature about it is nowadays available, for example, Maturi (2002). Much work needs to be done in order to fill this gap in southern Italian dialect linguistics.




## 2.2 Vowel system and vowel reduction

The tonic vowel system of Airolano consists of seven vowels: / a, ɔ, o, e, ɛ, i, u/. The number of vowels is usually reduced to three, namely /a, ə, u/, in unstressed position.

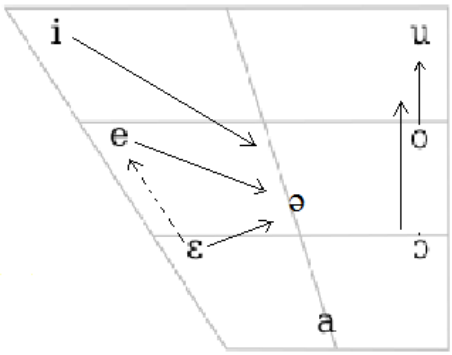
A different degree of reduction affects vowels depending on whether they occur in pre- or post-tonic syllables. In fact, vowels have a higher tendency to reduce in post-tonic position than in pre-tonic one, as supported by the prominence scale of vowel reduction proposed by Walker (2011:269) (see in 1):

(1) V/ strong (stressed) > V/Weak (Pre-tonic stem) >
> V/Extra-Weak (Post-tonic, Unstressed clitic)

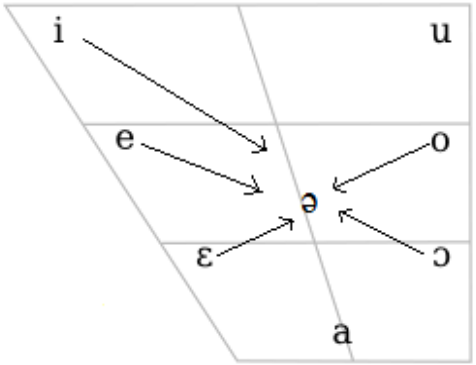
According to this scale, stressed vowels are the most prominent, followed by pre-tonic ones; this means that pre-tonic vowels are more likely to preserve all their features, while post-tonic ones are more easily reduced. Consequently, tonic vowels are more likely to be fully preserved, while post-tonic ones have a strong tendency of undergoing reduction. In fact, it can be observed that in Airolano, post-tonic vowels generally converge to [ə]. Furthermore, [e], turns into [ə] both in pre- and post-tonic position and tends to be retained, instead, when it expresses a particular grammatical function. [i] shows a similar distribution but it can also be preserved. Some free variation regarding the reduction and the preservation of the vowel [i] in unstressed syllables was also observed by Maturi (2002: 58) for other dialects of the province of Benevento. According to his data, Airolano is part of the area in which [i] has a stronger tendency to be preserved compared to the most-eastern part of the province where the opposite tendency is attested.

[ɛ] is also reduced to [ə] in post-tonic position; in pre-tonic position, while it usually tends to be reduced to [ə], it can also sometimes turn into [e]. [ɔ] can be reduced to [ə] in post-tonic position but it usually changes to [u] in a pre-tonic one; the same occurs with [o], which usually becomes [u] in pre-tonic position but, when post-tonic, it has the tendency to be centralized to schwa.

(2) Pre-tonic vowel reduction




(3) Post-tonic vowel reduction




[a] and [u], on the other hand, do not undergo reduction, except when in word-final position, when they are centralized towards schwa. Therefore, all word final vowels are realized as [ə] and no ending is overtly expressed.

In (4), (5), (6), (7), and (8) some examples of vowel reduction are provided; in a. the occurrence of the corresponding vowel in stressed syllable is given, while b. (and c.) show the vowel in an unstressed environment:

(4) Examples of reduction of [e]

a. ˈb:**e**və
drink.1/3PERS.SG.PRES.IND

b. b:**ə**ˈvimmə
drink.1PERS.PL.PRES.IND

(5) Examples of reduction of [i]

a. ˈr**i**kə
say1/3PERS.SG.PRES.IND

b. r**i**ˈʃimmə/r**ə**ˈʃimmə
say.1PERS.PL.PRES.IND

(6) Examples of reduction of [ɛ]

a. ˈʃp**ɛ**rə
hope.1/3PERS.SG.PRES.IND

b. ʃp**ə**ˈrammə
hope.1PERS.PL.PRES.IND

(7) Examples of reduction of [ɔ]

a. ˈvɔlə
fly.1/3PERS.SG.PRES.IND

b. vuˈla:tə
fly.PART.PASS

(8) Examples of reduction of [o]

a. ˈk**o**rrə
run.1/3PERS.SG.PRES.IND

b. k**u**rˈrimmə
run.1PERS.PL.PRES.IND

c. ˈNap**ə**lə
Naples

In addition, the centralization presented in (8) c. is a phenomenon which is common in the province of Benevento (Maturi 2002:63) but not pervasive in the rest of the region. In the dialects described by Maturi (2002), the phenomenon is attested both in pre- and post-tonic position. In Airolano it only occurs in post-tonic syllables, instead.

## 2.3 The definite article

The definite article in Airolano presents five different forms, namely:

-masculine singular;
-feminine singular;
-mass;
-masculine plural;
-feminine plural.

Like in Neapolitan, besides the canonical opposition between masculine and feminine, another distinction is attested; this distinction consists in the opposition between masculine singular [+num] and masculine singular [-num] (Ledgeway 2009: 140). The latter is not neuter gender but rather refers to a class of nouns which are semantically uncountable (Maturi 2002: 136).

Different forms are available according to whether the article precedes a noun starting with a consonant or one starting with a vowel. Among the forms preceding a vowel, while masculine singular, feminine singular and mass forms are invariable, the two plurals definite articles show some possible allomorphic variation (see table in 9).

(9) definite articles in Airolano

| Preceding | MASC.SG | MASS | FEM.SG | MASC.PL | FEM.PL |
|---|---|---|---|---|---|
| consonant | O | o [+RF] | A | i-e | e-i [+RF] |
| vowel | l' | | l' | l' | l' |

As can be observed, RF has a distinctive function: that of distinguishing between masculine and mass and between masculine plural and feminine plural. In fact, RF never occurs with masculine nouns. In addition, despite the fact that the forms of the plural articles can coincide, RF can only occur with the feminine article.

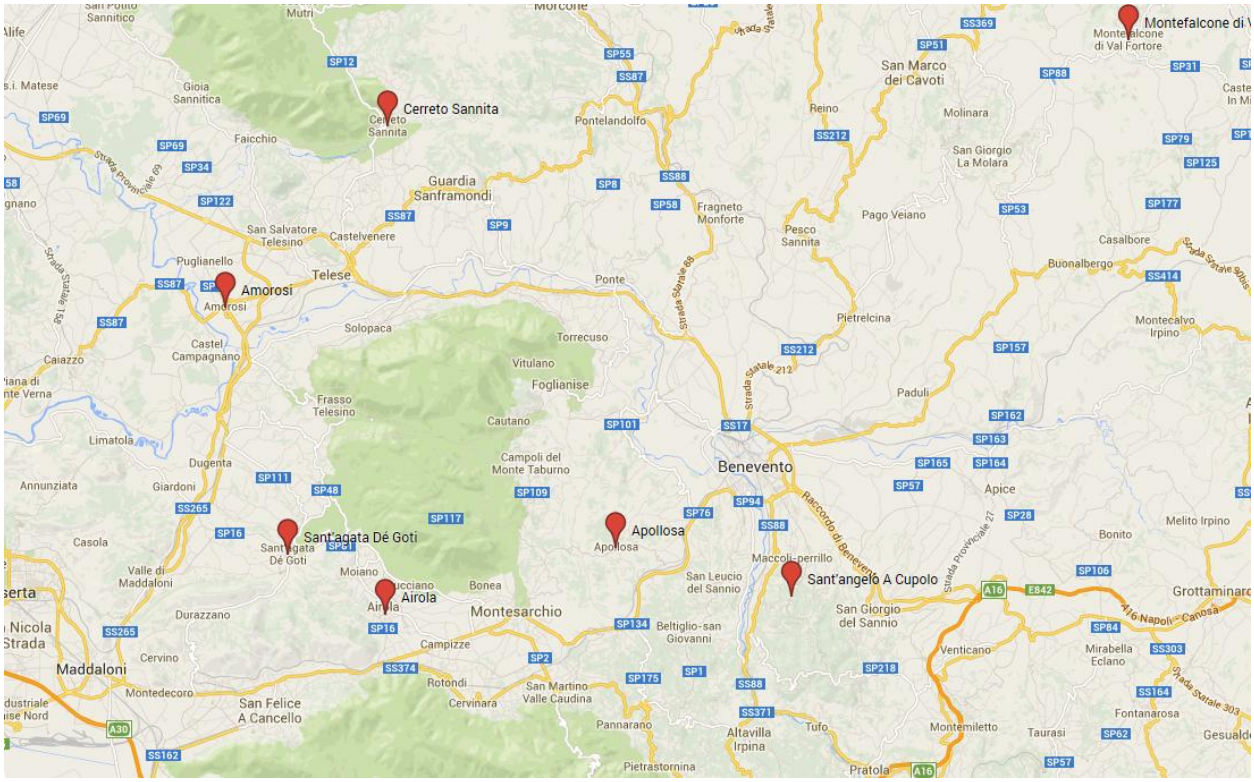
The forms and their attested allomorphs can be inserted in a broader diatopic chart comprehending other dialects of the north-eastern part of Campania described in Maturi (2002: 143). In fact, almost all of those dialects present similar forms (see table 10).

(10) Le forme dell'articolo determinativo davanti a consonante

| (dialect of) | MASC.SG | NEUTER[1] | FEM.SG | MASC.PL | FEM.PL |
|---|---|---|---|---|---|
| Amorosi | u-o | u [+RF] | A | i-e | i-e [+RF] |
| Apollosa | o-u | o [+RF] | A | i | e-i [+RF] |
| Cerreto S. | i-ju-u | lə [-RF] | A | i-e | lə [-RF] |
| Montefalcone | u-o | u-o [+RF] | A | i-e | i [+RF] |
| Sant'Agata | u-o | u-o [+RF] | A | i-e | i-e [+RF] |
| Sant'Angelo | o-u | o-u [+RF] | A | I | i-e [+RF] |

(Maturi 2002: 143)

In the following map, the towns listed in table (10) and the position of Airola are indicated. The map shows that the phenomenon of RF triggered by the feminine plural definite article has spread over an entire area of Campania, and constitutes, hence, a common trait among various dialects.




[1] Neuter indicates the article for uncountable nouns (Maturi 2002: 140)

## 2.4 Nouns

Reduction of word-final vowels has made the inflectional suffixes of the noun class opaque. Nouns usually present [ə] as their only word-final vowel. Consequently, no gender or number information is retrievable from the suffix. However, the agreement of nouns with other elements, such as, for example, articles and adjectives, shows some gender and number information (11-12).

(11) o ˈka:nə ˈrwossə i ˈka:nə ˈrwossə
The.MASC.SG dog big.MASC The.MASC.SG dog big.MASC

(12) a ˈka:sə ˈrɔssə e [+RF] ˈkka:sə ˈrɔssə
The.FEM.SG house big.FEM The.FEM.PL house big.FEM

Furthermore, in a group of masculine nouns the phonological phenomenon of metaphony marks the plural form, as it can be observed in (13).

(13) waˈj**o**nə waˈj**u**nə
boy.SG boy. PL

This group of nouns was originally composed by nouns which historically derive from third and fifth Latin declension (Ledgeway 2009: 60-1 & Maturi 2002: 140). However, currently it also comprehends modern nouns, for example terms related to modern technology. Moreover, metaphony was extended to nouns which would not originally present it.

It is important to take into consideration that metaphony is also attested in other groups of nouns, but in this case it affects both the singular and the plural form of the noun. These nouns usually derive from the second and fourth Latin declension (Ledgeway 2009 & Maturi 2002, ibidem). An example is given in (14). For some nouns included in this group, metaphony is due to overgeneralization.

(14) Latin: castellum (II declension)
kaˈst**je**llə kaˈst**je**llə
castle.SG castle.PL

In some masculine nouns, the metaphonic vowel is attested in the plural form and occurs to mark plural number. This number marking by metaphony is only attested in masculine and never in feminine nouns. Feminine nouns, instead, are marked for number only when preceded by the definite plural article or other plural determiners. In those instances, in fact, the plural form of a noun is affected by the gemination of its first consonant, which is triggered by the preceding element.

## 2.5 Metaphony

Metaphony is a well-known phenomenon in Italian dialects, which consists in the raising or diphthongization of a stressed vowel under the influence of a non-adjacent following high vowel (Rohlfs 1966, Maiden 1991, Fanciullo 1994, Ledgeway 2009). In Airolano, it only affects mid vowels, namely /ɔ, o, e, ɛ/ (see table in 15).

(15) Outcomes of metaphony in Airolano

| | |
|---|---|
| o > u | e > i |
| ɔ > wo | ɛ > je |

In the case of the high mid vowels [o] and [e], a proper raising of the vowel takes place. On the other hand, the low mid vowels [ɔ] and [ɛ] undergo diphthongization. This pattern is quite common in southern Italian dialects (Maiden 1991: 114).

In (16), some examples of metaphony affecting the noun class are given; each noun presents one of the four types of metaphony attested in the dialect.

(16) Metaphony affecting mid vowels in Airolano

| | | | |
|---|---|---|---|
| a.ˈm**ɔ**nəkə | b.waˈj**o**nə | c.ˈm**e**sə | d.ˈr**ɛ**ntə |
| monk.SG | boy.SG | month.SG | tooth.SG |
| ˈm**wo**nəʃə | waˈj**u**nə | ˈm**i**sə | ˈr**je**ntə |
| monk.PL | boy.PL | month.PL | tooth.PL |

Diachronically, metaphony is caused by a suffix consisting in a high vowel, namely [i] or [u]. However, due to reduction of word-final vowel, no high vowel suffix is visible in Airolano.

Similar cases are also found in various other Italian dialects in which the conditioning factor has been obscured by the neutralization or deletion of the final vowel. Consequently, the vowel alternation does not present an overt trigger (Calabrese 2011: 2638).

Metaphony is attested in various word classes of the dialect, such as, verbs, adjectives, possessive pronouns and nouns. In particular, in verbs, it affects the present and the simple past of indicative, past participles and imperatives. The same distribution of metaphony is attested in Neapolitan (Ledgeway 2009: 57-65) and in other dialects of the area of Benevento (Maturi 2002).

In Airolano the phenomenon appears to be productive; while in more innovative dialects spoken in larger centers of the region it is claimed to be generally in a regressive phase (Vitolo 2005: 147). The only exception to this claim is constituted by the metaphonic form in imperatives which occurs to be in an ongoing spreading in the various dialects (Ledgeway 2009: 59). In this mood, the spreading of metaphony has not been completed. In fact, some verbs are not affected by metaphony yet, while others present both metaphonic and non-metaphonic form. In addition, verbs which only have a metaphonic form in the imperative are also attested (Ledgeway 2009: 59).

In the present indicative, the phenomenon mainly occurs in the second person singular but is sometimes extended to the third person plural (17), while in the simple past it affects the first person singular (18).

(17) Examples of metaphony in the present indicative

| | a. Believe | b. Hope | c. Sleep | d. Run |
|---|---|---|---|---|
| I | ˈkr**e**rə | ˈʃp**ɛ**rə | ˈr**ɔ**rmə | ˈk**o**rrə |
| You | ˈkr**i**rə | ˈʃp**je**rə | ˈr**wo**rmə | ˈk**u**rrə |
| (S)He | ˈkr**e**rə | ˈʃp**ɛ**rə | ˈr**ɔ**rmə | ˈk**o**rrə |
| We | kr**ə**ˈrimmə | ʃp**ə**ˈrammə | r**u**rˈmimmə | k**u**rˈrimmə |
| You | kr**ə**ˈritə | ʃp**ə**ˈratə | r**u**rˈmitə | k**u**rˈritə |
| They | ˈkr**e**rənə/ˈkr**i**rənə | ˈʃp**ɛ**rənə | ˈr**wo**rmənə | ˈk**u**rrənə |

(18) Example of metaphony in the simple past

| | a. believe | b. sleep |
|---|---|---|
| I | krəˈr**je**ttə | rurˈm**je**ttə |
| You | krəˈristə | rurˈmistə |
| (S)He | krəˈr**ɛ**ttə | rurˈm**ɛ**ttə |
| We | krəˈr**ɛ**ttəmə | rurˈm**ɛ**ttəmə |
| You | krəˈr**ɛ**stəvə | rurˈm**ɛ**stəvə |
| They | krəˈr**ɛ**ttənə | rurˈm**ɛ**rənə |

Imperative shows an ongoing spread of metaphonic forms. Some verbs present the metaphonic form as the only imperative form, while others display it as one of the possible alternatives. This does not exclude, however, the attestation of verbs which only have a form with no metaphony (19).

(19) Examples of metaphony in imperatives

| | a.ˈmove awayˈ | b. sleep |
|---|---|---|
| You.SG | ˈl**ɛ**vətə/ˈl**je**vətə | ˈr**wo**rmə |

On the other hand, in past participles, possessive pronouns and adjectives, metaphony affects the masculine form, while the non-metaphonic vowel displays in the feminine form (20).

(20) Examples of metaphony in past participles (a), possessive pronouns (b) and adjectives (c)

| a.ˈk**wo**ttə | b. ˈt**wo**jə | c.ˈr**wo**ssə |
|---|---|---|
| cooked.MASC | your.MASC | big.MASC |
| ˈk**ɔ**ttə | ˈt**ɔ**jə | ˈr**ɔ**ssə |
| cooked.FEM | your.FEM | big.FEM |

Finally, in the case of nouns, metaphony only affects masculine nouns; furthermore, it acquires distinctive value when, characterizing only the plural form, it marks the plural number, as it was shown in (16).

## 2.6 Raddoppiamento Fonosintattico

RF is a sandhi phenomenon consisting in the gemination of a word initial consonant which is triggered by a preceding word. There are two main types of RF, namely the one attested in Tuscan dialect and Standard Italian, which is phonologically triggered (Nespor & Vogel 1986, Fanciullo 1986, Loporcaro 1997), and a lexically encoded one (Loporcaro 1997, Borrelli 2002), also defined as *morphological raddoppiamento* in Chierchia (1986: 7). In the former, word1 consists of an oxytone word, while in the latter a specific word or particle is lexically encoded as a trigger. Furthermore, lexically-induced RF only occurs when the trigger and the affected item constitute a minimal phrase, which can be defined as "a kind of hierarchically superior word" (Fanciullo 1986: 88). In fact, whether the elements are not part of the same minimal phrase, RF fails to take place.

According to Loporcaro (1997), the two types of RF constitute different diachronic stages of the same phenomenon. To explain, RF was generated in Late Latin and went through three stages. In the first stage it consisted in a synchronic assimilation of a word-final consonant to the following and adjacent word-initial consonant. This stage is still attested in some Romance varieties and Sardinian (Loporcaro 1997: 121). The intermediate stage constitutes lexically based RF, which is found in southern Italian dialects; here, the word-final consonant is lost but the consonantal length is still preserved in the syntagmatic relationships and triggers the process (Loporcaro 1997: 122). In fact, an empty slot is present in the underlying representation of the lexical item; the empty space is, then, filled by the following word-initial consonant which undergoes gemination (Borrelli 2002). Finally, the third stage represents the stage which is found in Standard Italian and in Tuscan dialect. In this stage, a reanalysis of the occurrences of RF took place, hence, RF was reinterpreted as being driven by a stressed word-final vowel (Loporcaro 1997: 127).

In Airolano, RF is lexically based; hence a word-initial consonant is geminated when preceded by a specific triggering word. Gemination, though, does not always take place. In fact, as noted by Fanciullo (1986: 70), the target consonant is not geminated when it already has a reinforced articulation, or is already geminated; furthermore, gemination does not affect consonant clusters.

Moreover, in some cases the outcome of RF is not a simple lengthening but also a change in place and (if necessary) in mode of articulation (Fanciullo 1986: 70-1); in Airolano,

it occurs with the following consonants (the same changes were noticed by Fanciullo (1986: 70-1) and Maturi (2002: 108) for other southern Italian dialects) (for examples, see (21)):

- [v] > [b:]
- [r] > [d:]
- [j] > [ɟ:]
- [w] > [gw:]
- [ʃ] > [tʃ]

(21) a. ˈvekə / e ˈbbekə
see.1PERS.SG / them.CLIT.FEM.PL see.1PERS.SG

b. o ˈritə / e ˈddetə
the.MASC.SG finger.MASC.SG / the.FEM.PL finger.FEM.PL

c. nu jwornə / tre ɟɟwornə
one day.SG / three day.PL

d. a waˈjonə /e ggwaˈjonə
the.FEM.SG girl.SG / the.FEM.PL girl.PL

e. a ʃəˈrasə /e tʃəˈrasə
the.FEM.SG cherry.SG / the.FEM.PL cherry.PL

Instances of lexical elements triggering RF are some prepositions, the numerals *two* and *three,* some prepositions, clitic pronouns and determiners, more specifically the ones indicating uncountable and feminine plural nouns (Iannucci 1948, Agostiniani 1975).

Much research was done regarding RF attested with mass nouns, and, in particular when triggered by the definite article, in Campanian dialects (Borrelli 2002, Ledgeway 2009). A number of analyses supports the idea that the definite article for uncountable nouns derives from the Late Latin neuter demonstrative pronoun ILLUD, while the masculine one comes from the Late Latin masculine pronoun ILLU (the final M had vanished earlier, by the first century B.C) (Borrelli 2002: 33). Subsequently, the final consonant of ILLUD was lost but

some trace of it was still preserved, causing, then, RF (Loporcaro 1997: 49, Borrelli 2002: 29-35).

On the other hand, the case of the feminine plural definite article as being a lexical trigger of RF is not well documented and partially ignored. This characteristic of the determiner had already been noticed for some southern Italian dialects in Iannucci (1948) and Agostiniani (1975).

According to Agostiniani (1975), the attestation of the phenomenon is limited to the central part of Apulia, the north-west of Lucania and only the central southern part of Campania. In particular, he claims that the phenomenon is not attested in the area north of the line Monte di Procida – Napoli – Ottaviano - Montefusco – Trevico (Agostiniani 1975: 193). Nevertheless, this property of the feminine plural definite article, which is indeed attested in Airolano, was also noticed for other dialects of Sannio Beneventano in Maturi (2002: 142). In fact, Maturi (2002) claims that RF ([+RF], in his terms) represents one of the three possible strategies of marking feminine plural in the region of Campania, the others being preservation vs. loss of the consonant and the different "quality" of the vowel (Maturi 2002: 142) (see again table in 4). It is important to notice that the same strategies are claimed to be used for the masculine vs. mass distinction (Maturi 2002: 137).

A word initial consonant of a feminine plural noun is geminated every time it is preceded by the definite article. Diachronically, the feminine plural definite article derived from the Late Latin *ILLAEC (Loporcaro 1997: 49, Borrelli 2002: 29-35). In southern Italian dialects, determiners always continue the final part of the Latin demonstrative: *(ILL)AEC > *e*. Consequently, the determiner *e* preserved some underlying traces of the lost final consonant; the trace, then, triggers RF (22).

(22) trace of the lost consonant in the representation of *e*

```
x  x  #  x  x   x  x   x  x  x
|     \  /   |   \  /   |  |  |
e      f     e     M     ə  n  ə
```

The.FEM.SG woman.PL

## 2.7 Summary

In this chapter, some information regarding Airolano and its characteristics have been introduced. Firstly, the area in which it is spoken has been indicated. Secondly, the vowel

system and the vowel reduction affecting it have been presented. Thirdly, the definite article system and the noun class have been briefly described. Finally, an outline of the process of metaphony and RF has been given and their occurrence and distribution in the dialect has been presented.

# 3. Data

In this section, the collected data are presented. Firstly, the methodology is introduced and the groups of participants are briefly described. Secondly, the results of the data in relation to the two phenomena under research, namely metaphony and RF, are presented. Finally, some conclusions and generalizations regarding the distribution and productivity of the two phenomena are drawn.

## 3.1. Methodology and participants

10 native speakers of Airolano were invited to translate a list of nouns preceded by the definite article from Italian into the dialect and to give their plural form. All the informants are native speakers of the dialect and have lived for most of their life in the town. Another criterion for their selection was that also their parents were raised and lived in the town. Participants can be divided in 4 groups according to their age:

| | a. 75-85 | b. 55-65 | c. 25-30 | d.15-20 |
|---|---|---|---|---|
| Female | 1 | 2 | | 2 |
| Male | 1 | 1 | 2 | 1 |

Group a. is composed by one 76 year old man (B)[2] and an 81 year old woman (A), both with elementary education. Three people, two women and one man, of 58 (E), 59 (D) and 67 (C) years old form group b.; the youngest speakers in this group have a university degree while the other has only elementary education. However, the difference in level of education did not reveal any significant difference in the answers. In group c. two men of 27 (G) and 28 years old (F) were selected, both currently university students. Finally, the last group is composed by three teenagers of 15 (J), 17 (I) and 18 years old (H), one man and two women, respectively.

Most of the nouns were part of the common lexicon of the dialect, for example nouns such as “tooth” or “plant”. In the list also modern nouns, such as, for example, “printer” and “mp3 player” were included. Then, the informants were asked to make the plural of some

[2] I refer to speakers with letters; the list of the speakers can be found in Appendix 1.

invented words which were given directly in dialect (see Appendix 1 for the original list and Appendix 2 for the summary of the answers). In order to test the productivity of metaphony, nouns presenting each of the seven vowels in stressed position were selected. Nonce words, instead, only presented the four stressed vowels which could undergo metaphony. The selection of nouns for the testing of RF was based on the characteristic of the word-initial consonant of the noun. Only words with an initial consonant were chosen. Among the consonant inventory, voiceless plosives were preferred, due to their more straightforward realization in the dialect. Other consonants were also included, even though in smaller percentage. The voiced plosive [b] was excluded because of betacism, a lengthening which is pervasive in the dialect of Airola. Consonant clusters consisting of *s* followed by a consonant were avoided but few instances were still considered.

The recordings were made during informal meetings in the participants' houses and in the public garden of the town (in the case of the17 and the 18 year old girls). Each recording was made separately and in a single meeting with each one of the informants. The data were collected in December 2013 and April 2014. The corpus was, then, transcribed in IPA. The full set of data is stored in the Italian Dialect archive of Leiden Univeristy.

### 3.2 Results

The data exhibit some variation in respect to the gender of certain words (23). The gender variation does not seem to be attributable to the age group of the informants.

(23) a. o paˈlummə / i paˈlummə
the.MASC.SG dove.MASC.SG the.MASC.PL dove.MASC.SG

b. a paˈlommə / e ppaˈlommə
the.FEM.SG dove.FEM.SG the.FEM.PL dove.FEM.PL

In (23), an example of a word that resulted to be feminine for some speakers and masculine for others is provided. In a. its masculine version is given, while in b. its feminine version is presented.

Regarding RF, every participant applied it uniformly and consistently with every feminine plural noun phrase. Furthermore, no exception even with ambigender words which

were masculine in the singular and feminine in the plural was attested, as can be observed in (24).

(24) o krjaˈturə - e kkrjaˈturə
the.MASC.SG child.MASC.SG the.FEM.PL child.FEM.PL

For one of the speakers (G) and in some instances for another one (I), only one form of the definite plural article, namely *e,* was used for both masculine and feminine. Significantly, this did not affect the occurrence of RF, which was attested only with feminine plural nouns (see 25, where RF is in bold).

(25) o təlefoˈninə - e təlefoˈninə
the.MASC.SG cellphone.MASC.SG the.MASC.PL cellphone.MASC.PL

a ˈpennə - e ˈ**p**pennə
the.FEM.SG pen.FEM.SG the.FEM.PL pen.FEM.PL

It is important to highlight again that the variation of the form of the definite article was also attested in Maturi (2002: 140) for other dialects of Sannio Beneventano.

The occurrence of metaphony, instead, showed some variation among the speakers and among groups. Despite this, it can be claimed that the attestation of the phenomenon in nouns being part of the common lexicon of the dialect was quite stable. Some exceptions were constituted by the extension of the metaphonic vowel or diphthong to the singular form of the noun (26).

(26) o ˈn**ɛ**rvə /ˈn**je**rvə - i ˈn**je**rvə
the.MASC.SG nerve.MASC.SG the.MASC.PL nerve.MASC.PL

Some of the younger speakers applied metaphony to nouns which did not present it in the data from the eldest informants (27).

(27) o ˈp**o**ntə - i ˈp**o**ntə / ˈp**u**ntə
the.MASC.SG bridge.MASC.SG the.MASC.PL bridge.MASC.PL

The variation was invariably found in the masculine. There was no attestation of metaphony with feminine nouns.

The data also reveal a diachronic extension of metaphony. In fact, the number of instances in which metaphony is attested increases with the decreasing of the age of the informants. Consequently, the eldest group presents only one plural noun affected by metaphony while the youngest one presents 6 or 7 out of 8 nouns undergoing metaphony (see table in 28). This spreading occurs only in modern words while, as stated above, traditional vocabulary items show metaphony also in older speakers.

(28) Modern nouns in the different groups

| | a. 75-85 | b. 55-65 | c. 25-30 | d.15-20 |
|---|---|---|---|---|
| Metaphony | 1 | 1 | 4/5 | 6/7 |
| No metaphony | 7 | 7 | 4/3 | 2/1 |

Group a. and group b. present the same one modern noun undergoing metaphony as illustrated in (29).

(29) Modern words affected by metaphony in group a. and b.

piˈtonə/piˈtunə

python

On the other hand, the number of instances in which the phenomenon is attested duplicates in the third group. In fact, three (or four) additional nouns are affected by metaphony. Finally, in the data of the youngest informants, metaphony spread almost everywhere (30).

(30) modern nouns affected by metaphony in group d.

karikaˈtorə / karikaˈturə
phone charger

letˈtorə mp3/ leˈtturə mp3
mp3 player

miˈkrəfənə / miˈkrwofənə
microphone

karburaˈtorə / karburaˈturə
carburator

In (31) are given the two words that were found, instead, to be more resistant to undergo metaphony. Specifically, the words *videoregistratore* and *telefono* were affected by metaphony only for one informant, I and H respectively. Both I and H are part of the youngest age group.

(31) modern nouns (almost) not affected by metaphony

| | |
|---|---|
| videoregistraˈtorə/videoregistraˈtorə | təˈlɛfənə / təˈlɛfənə |
| video tape recorder | telephone |

Therefore, diachronically speaking, an evident tendency to extend metaphony to modern words is attested. Hence, metaphony is still productive in plural noun formation in the dialect. The reason for the difference among groups could be the fact that the youngest participants tend to perceive the modern nouns as part of their everyday lexicon. On the other hand, the eldest participants perceive them as being loanwords from Italian, hence, metaphony does not take place.

The testing of nonce words had a more variable outcome than the one of modern words, even though a general tendency can be outlined (see table in 32). In (32) a. the nonce word *kaˈsenə* has two possible plural forms, a metaphonic and a non-metaphonic one. A preference for the non-metaphonic plural, instead, can be noticed for *tiˈnɛpə,* in (32) b.. In (32) c., for *ʃiˈnonə,* only the metaphonic plural, namely *ʃiˈnunə*, displays in every group. Finally, the same tendency is attested for ʃɔtə in (32) d.. Furthermore, some participants failed to apply metaphony correctly; for example in (32) d., in which [ɔ] is supposed to diphthongize into [wo], one of the informants raised it to [u].

(32) nonce words

| SINGULAR | a. 75-85 | b. 55-65 | c. 25-30 | d.15-20 |
|---|---|---|---|---|
| a. o kaˈsenə | i kaˈsenə<br>i kaˈsinə | i kaˈsenə<br>B i kaˈsinə | F i kaˈsenə<br>G i kaˈsinə | i kaˈsenə<br>I i kaˈsinə |
| b. o tiˈnɛpə | i tiˈnɛpə | i tiˈnɛpə<br>F i tiˈnjepə | F i tiˈnɛpə<br>G i tiˈnipə | i tiˈnɛpə |
| c. o ʃiˈnonə | i ʃiˈnunə | i ʃiˈnunə | i ʃiˈnunə | i ʃiˈnunə |
| d. o ˈʃɔtə | i ˈʃwotə | i ˈʃwotə<br>E i ˈʃutə | i ˈʃwotə | i ˈʃwotə |

In the case of the word presenting [e] in the stressed syllable, namely the word in (32) a., both forms, namely the metaphonic one and the non-metaphonic one, occur. The tendency to have

both forms is lower for the word containing [ɛ], in (32) b., for which the non-metaphonic plural seems to be preferred. Apart from the deviation of E for [ɔ], metaphony of [o] and [ɔ] is more straightforward. In fact, [o] turns into [u] for all speakers, while [ɔ] becomes [wo] for all of them, except E. Consequently, metaphony is proven to still be productive, in particular in the case of [ɔ] and [o].

Summing up the results of modern and nonce nouns, a hierarchy of the different degree of productivity of metaphony can be delineated. To explain, [o] is the vowel for which metaphony is more productive, followed by [ɔ]. Less instances of [e] being affected by the phenomenon are registered. Finally, [ɛ] is more resistant to it.

### 3.3 Metaphony and RF

The data show a pattern of distribution of metaphony and RF which is quite straightforward. In fact, a division of labor between the two can be observed: while metaphony only occurs with masculine plural, RF is only attested with feminine plural. This is confirmed by the data in (33) and (34):

(33) a tələviˈsjonə / e ttələviˈsjonə
the.FEM.SG television.FEM.SG the.FEM.PL television.FEM.PL

(34) o piˈstonə /i piˈstunə
the.MASC.SG piston.MASC.SG / the.MASC.PL piston.MASC.PL

The noun in (33) is feminine, while the one in (34) is masculine. Thus, being the noun in (33) the only noun preceded by a feminine plural article which triggers RF, it is not surprising that the process only occurs in (33). On the other hand, both nouns have the right environment for the occurrence of metaphony. In fact, both nouns, in their Italian version from which they were borrowed by the dialect, have a suffix *–e* in the singular and a suffix *–i* in the plural (*televisione/televisioni, pistone/pistoni).* Consequently, we would expect both to present metaphony in their plural form. But this does not occur and metaphony is attested only in the masculine plural and not in the feminine one. The two phenomena, metaphony and RF, are in complementary distribution, and mark masculine plural and feminine plural respectively.

## 3.4 Conclusion

RF is productive and occurs consistently with every plural feminine noun preceded by the definite article. In those cases of isomorphism in which masculine and feminine definite article are both *e* (in some speakers idiolect), RF only applies when the article and the noun are actually feminine.

On the other hand, metaphony is more irregular even though it is still highly productive. This is also supported by the fact that younger generations extend its occurrence also to modern words. The reason why older generations, instead, appear to be more resistant to let modern nouns undergo metaphony seems to be related to their perception of the words as loanwords from Italian. Moreover, the testing of nonce words actually shows, diachronically speaking, an increasing of the occurrence of metaphony.

The degree of productivity of metaphony varies from vowel to vowel. Raising of [o] to [u] is still highly productive. The [ɔ] / [wo] alternation is also productive, while [e] and [ɛ] are less affected by metaphony. In particular, [ɛ] happens to be particularly resistant to diphthongization.

In conclusion, a complementary distribution of metaphony and RF resulted from the data. This distribution seems to be morphological in nature. In fact, metaphony marks masculine plural, hence it cannot occur in feminine plural, even in the presence of an environment for metaphony. On the other hand, RF marks feminine plural. The two phenomena never co-occur.

In what follows, the nature of metaphony and RF in Airolano will be investigated.

# 4. Analysis

In this chapter an analysis of metaphony and RF and some observations regarding their division of labor are presented. The structure of the chapter is the following:

Firstly, in 4.1, the theoretical framework used (CVCV theory and Element theory) is introduced.

Secondly, in 4.2, the analysis elaborated by Maiden (1991) is described and applied to the Airolano data, proposing a solution for some problematic aspects.

Thirdly, in 4.3, the analysis of stress-induced RF within CVCV (following Passino 2013) is presented; it is then applied to the data.

Then, in 4.4, a description of the distribution and interaction of RF and metaphony is given. Subsequently, their morphological distinctive value is highlighted and an element-based analysis of the inflectional suffixes of the nominal class and the definite articles is proposed in order to make a comparison of the element structure of masculine plural and feminine plural DPs. Then, the CV structures of the definite articles are also taken into account.

Finally, in the conclusions, section 4.5, the main points of the analyses and the main findings are summarized.

## 4.1 CVCV and Element Theory

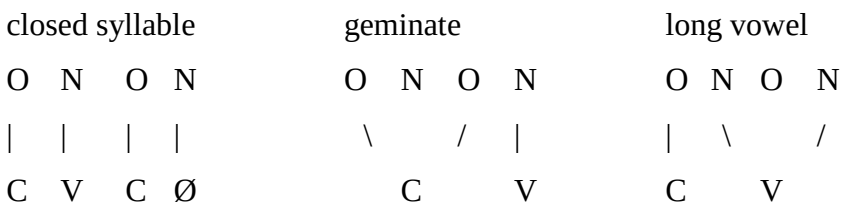
In this section a brief outline of CVCV theory (Scheer 2004) and of Element theory (Backley 2011) is given. These frameworks will be used in section 4.2, 4.3 and 4.4 to analyze the data of Airolano.

### 4.1.1 CVCV Theory

CVCV was developed within Government Phonology (Kaye, Lowenstamm and Vergnaud 1985, 1990). CVCV assumes that syllables are constituted by non-branching Onsets and non-branching Nuclei. The minimal syllabic unit consists in an Onset and a Nucleus together and no Codas or Rhymes are possible (Scheer 2004: 1). Consequently, CV constitutes the only syllable type (Lowenstamm 1996). Because there are no branching constituents in the

phonological representation, the presence of empty positions has to be assumed for closed syllables, as can be observed in (35):

(35)




(Scheer 2004: 1)

The empty nuclei are regulated by the Empty Category Principle, that is stated as follows:

(36) "Empty category principle: an empty category may remain unexpressed only if precise conditions are met. These conditions are defined in terms of the relation that the empty category contracts with a filled position at some lateral distance."

(Scheer 2004: 7)

Furthermore, an empty nucleus can remain unexpressed if it is properly governed, enclosed within a domain of Infrasegmental Government or if it occurs at the end of a domain (Scheer 2004: 67). Government of an empty nucleus can only apply on a full nucleus word-internally. On the other hand, word-finally, governing depends on parametric variation (Rizzolo 2002: 65, Passino 2013: 324). In fact, languages like Italian do not allow word-final empty nuclei, and neither does Airolano.

### 4.1.2 Element Theory

In Government Phonology, phonological representation occurs by means of primes called elements. Their linguistic function is to "encode lexical contrast" (Backley 2011: 6). In addition, they refer to the acoustic properties of the segment (Backley 2011: 6). What distinguishes Element theory from other approaches is the assumption that elements are

monovalent; in contrast, features are mostly bivalent, consisting in [+feature] or [-feature] (Backley 2011: 7).

Consonants and vowels consist of the combination of elements. Some of the elements are mainly associated with consonants and others with vowels. The relevant elements for this work are those three which are mainly used to describe vowels, namely |A|, |I| and |U| (Backley 2011: 17). These three elements represent the three acoustic patterns on which language users focus on in the speech signal (Backley 2011: 22).

The element |I| represents the pattern consisting of a low F1 and a high F2 and characterizes front vowels (Backley 2011: 23). On the other hand, |U| presents low F1 and low F2, which are typical in round vowels (Backley 2011: 23). Finally, the element |A| consists in a pattern in which both frequencies (F1 and F2) are high, which is usually present in mid and low vowels (Backley 2011: 23). However, it is important to keep in mind that the elements represent patterns and not absolute values, hence the exact frequencies can vary among speakers.

Every vowel is the result of the combination of these three fundamental elements (Backley 2011). One of the elements occurs to be more prominent and it constitutes, hence, the head (Maiden 1991:138). Therefore, vowels can be represented as in the following table, where the prominent vowel is the leftmost one (37).

(37) Vowels in Element Theory[3]

| | | |
|---|---|---|
| [a] | = | \|A\| |
| [e] | = | \|I, A\| |
| [ɛ] | = | \|A, I\| |
| [o] | = | \|U, A\| |
| [ɔ] | = | \|A, U] |
| [u] | = | \|U\| |
| [i] | = | \|I\| |

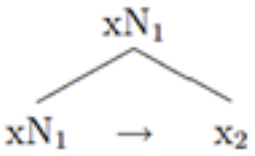
|A|, |I| and |U| are monovalent and symmetrical elements. However, an asymmetry between |A| and the other two elements has been noticed by various linguists, though it has not been formalized yet (see Pöchtrager 2006). Pöchtrager (2006) propose that the element

[3] Only the vowels relevant for this research, namely only the vowels present in Airolano, were taken into consideration.

|A|, differently from the others, has structural properties (Pöchtrager 2006: 61). He assumes that the element can allow an adjunction structure (Pöchtrager 2006: 165), as can be observed in (38), where the structure of |A|, |I| and |U| is illustrated:

(38) Representation of elements following Pöchtrager (2006)

|A|




|I| / |U|

$xN_1$

It is problematic to postulate a bigger structural size of the element |A| and it remains unclear what the exact structural difference is between |A| and other elements**.** However, my data show that this element presents, indeed, some peculiarity which puts it in an asymmetrical relation with |I| and |U|. The hypothesis is that this difference is due to some kind of extra length, which can also be represented by |A| having the capability of attaching at the same time to two CVs. This will become clearer in section 4.2.2 that is dedicated to the analysis of metaphony.

## 4.2 Metaphony as demotion of |A|

In this section, the hypothesis of metaphony as demotion of |A|, elaborated by Maiden (1991) is outlined in order to be applied, then, to the analysis of the collected data. An analysis for the process of metaphony resulting into diphthongization is also proposed. To do so, I assume a special status of the element |A|, following Pöchtrager 2006.

### 4.2.1 Demotion of |A| (Maiden 1991)

Maiden (1991) elaborates an Element based account of metaphony. He claims that metaphony involves the demotion of the element |A| from the vowel in stressed position. The demotion is motivated by the absence of the element |A| in the following post-tonic vowel (Maiden 1991: 140); as a consequence, the |A| of the vowel undergoing the process is subject to a gradient decline in its preponderance (Maiden 1991: 141). In some instances, the element |A| is

completely lost, while in others it loses its prominent (head) position. The following table in (39) illustrates the occurrence of metaphony as demotion of |A|:

(39) Metaphony as demotion of |A|

| | | | | |
|---|---|---|---|---|
| \|I, A\| | (= /e/) | => | \|I\| | (= /i/) |
| \|U, A\| | (= /o/) | => | \|U\| | (= /u/) |
| \|A, I\| | (= /ɛ/) | => | \|I\| \|I, A\| | (= /je/) |
| \|A, U\| | (= /ɔ/) | => | \|U\| \|U, A\| | (= /wo/) |

(Maiden 1991: 140)

As can be observed, in the /e/ vs. /i/ and /o/ vs. /u/ alternation, |A| is lost. On the other hand, when metaphony causes diphthongization the element loses its prominent position; at first glance, the loss of prominence of |A| does not seem to be the only change taking place in this instance; in fact, an extra element, either |I| or |U| seems to be also added. But it is indeed the case of the element |A|only losing its prominent position and I will give a detailed explanation of the process in the next section (4.2.2).

What has to be accounted for, at this point, is the actual cause that triggers the phenomenon. In fact, in "canonical" cases of vowel harmony[4] **(**see Baković 2003 and Nevins 2010), the change is triggered by a vowel in tonic position while vowels in other positions are the targets of the change. Consequently, metaphony is triggered by a vowel in post-tonic position and its target is a vowel in the stressed syllable. Recalling the hierarchy in (1), here repeated as (40), metaphony is, hence, triggered by a vowel in weak position and affects a vowel in the strongest position.

(40) V/ strong (stressed) > V/Weak (Pre-tonic stem) >
> V/Extra-Weak (Post-tonic, Unstressed clitic)

(Walker 2011:269)

Walker (2005) proposes a phonetic motivation for this peculiarity of metaphony. She claims that high vowels are more difficult to perceive for the language user. Furthermore, they

[4] I assume metaphony to be an a-typical case of vowel harmony

become even less perceivable if they happen to occur in a weak position, such as in unstressed syllables. Therefore, the feature or, as in this case, the lack of an element, is spread to the vowel in strong position. Consequently, the perceptibility of the element is improved. To put it differently, Walker (2005) claims that the perceptually difficult features in weak position need to be licensed by the presence of the same feature in strong position. I assume that the same licensing occurs in metaphony. But there is one difference that is not only relevant to the framework in which Walker's (2005) licensing hypothesis was elaborated (in fact, while she refers to features, here the analysis of the process is based on the assumption of elements). The difference lays in the fact that Walker (2005) accounts for feature spreading, while, in metaphony as demotion of |A| it is the lack of the element that spreads. In other words, the lack of the element |A| in weak position has to be licensed by the recession of the same element in the vowel in strong position, namely in the stressed syllable.

Consequently, since metaphony involves the loss or demotion of the element |A|, it becomes impossible to account for it as a spreading. Rather, metaphony should be considered as a "removal of the association lines" which connect the target vowel with |A| (Maiden 1991: 141). It is the lack of the element in one syllable that "spreads" in some way, causing the loss of the same element or its recession in the target vowel. Nevertheless, it is not easy to formalize that the lack of an element in a position causes a similar lack to spread in another position. Van der Hulst (forthcoming) tries to account for this "negative spreading" by adding the element |∀| into the vowel representation. According to his analysis, some processes of vowel harmony are due to stressed vowels attracting |∀|. This attraction occurs when the |A| element is not licensed in the position. This account presents various problems, which the same Van der Hulst (forthcoming) highlighted. The main problem is that the addition of an extra element in the element inventory represents a deep change in the Element theory's framework. In fact, elements are considered to be monovalent. Thus, some kind of "opposite" element cannot be postulated.

Therefore, a different way of explaining the occurrence of the demotion still needs to be elaborated. Oudekken (2013) tries to formulate various strategies in order to solve this problem, but she concludes that the only possible solution would be to modify the theory, for example by allowing the presence of other elements. However, from my perspective, demotion of |A| constitutes, among the analyses available, the most straightforward way to account for metaphony in Airolano. To explain, despite the theoretical flaws of this analysis, the assumption of a particle demotion is what better explains the evidence that comes from the data. Therefore, even though the theory still has problems accounting for some kind of

harmony which involves the "spreading of an absence", this, to my knowledge, is the most adequate way to account for the data from Airolan. In fact, it would be more problematic to account for it in terms of element/feature spreading. Further research needs to be done in order to find a place for these empirical facts within this framework.

### 4.2.2 Analysis

Before proposing the analysis of the data on the basis of metaphony as demotion of |A| (Maiden 1991), vowel reduction is first taken into account.

Due to the process of reduction, every word-final vowel is reduced to schwa. As a consequence, no overt trigger is synchronically visible. Yet, the triggers, namely the vowels /i/ and /u/|, must be present in some way. There are two possible ways to account for this: either the elements of the vowels are still present but they are floating; or vowel reduction is synchronic and metaphony occurs before it. Following Maturi (2002), I assume the second hypothesis to be valid. This means that, if vowel reduction occurs synchronically, the elements are still present in the underlying form, and trigger metaphony. Subsequently, the word-final vowel is reduced and the elements are lost. Consequently, in the surface form the trigger of metaphony is not overtly realized and it is opaque. This claim is an instance of what McCarthy's (2007) calls "counterbleeding opacity". This counterbleeding opacity occurs when a rule A bleeds a rule B but the rule B is applied first. In our case, word-final vowel reduction (rule A) bleeds metaphony (rule B), but metaphony applies before the taking place of reduction. This is exemplified in (41):

(41) Counterbleeding opacity

ˈʃorə - ˈʃurə
flower.SG – flower.PL

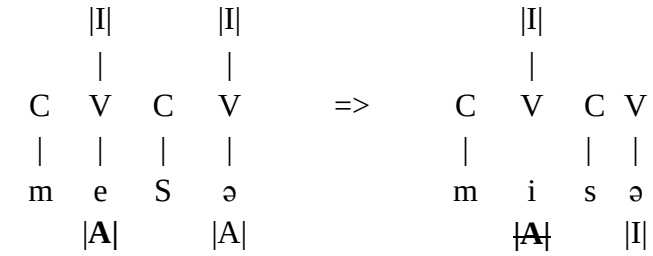
| | |
|---|---|
| Underlying | ˈʃori |
| Metaphony | ˈʃ**u**ri |
| Reduction | ˈʃur**ə** |
| Surface | ˈʃurə |

As can be observed in the example in (41), in the underlying form the word-final vowel is still present; furthermore, metaphony has not taken place yet, so the non-metaphonic vowel is still attested. Subsequently, metaphony applies and the stressed vowel is raised but the word-final vowel is still present. Afterwards, reduction occurs and the final vowel, which in the previous phase caused metaphony, is lost. Finally, in the surface form both processes have already taken place, which means that the trigger of metaphony is opaque.

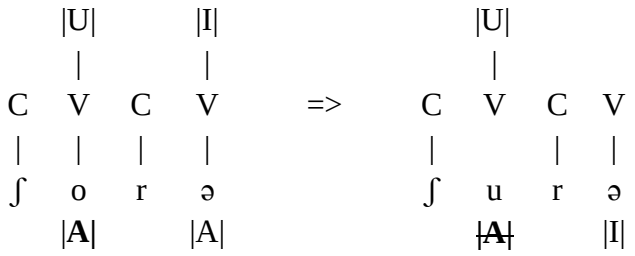
We now proceed to give an analysis of metaphony as demotion of the element |A|. First, the cases involving raising will be taken into account. Secondly, metaphonic diphthongization will be considered.

In metaphonic raising, the element |A| in the stressed vowel is lost, licensing its absence in the suffix vowel. “Losing a vowel” means that the element is detached from its V position, as it can be seen in (42) and (43).

(42) ˈmesə - ˈmisə
month.SG – month.PL




(43) ˈʃorə - ˈʃurə
flower.SG – flower.PL




In (42) the CV structure of the word ˈ*mes*ə and the elements constituting its vowels are represented. The same is done for its plural form, ˈ*mis*ə, which presents a metaphonic vowel. In particular, the elements of the word-final vowels before undergoing reduction are taken

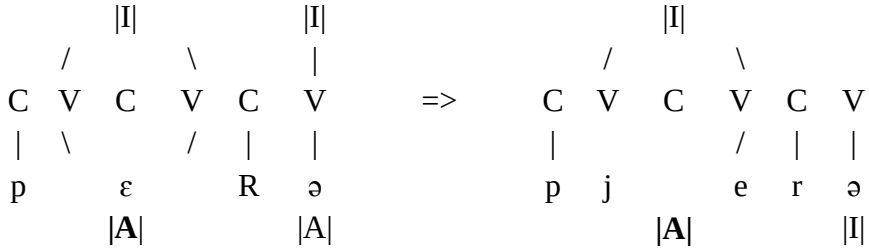
into account. Therefore, in the singular the last V has two elements attached, |I| and |A|, while in the plural it only has one, that is |I|. This is due to the fact that the word-final vowels in the singular and in the plural are [e] and [i] respectively. The last V in the plural form has only the element |I|. The lack of |A| in that position needs to be licensed by the V in the stressed syllable. Therefore the |A| element of the stressed vowel is delinked from its V and is lost. Consequently, the V in prominent position is left with only an |I| element, hence, it is realized as /i/. After the raising has taken place, word-final vowel reduction occurs.

In (43) the same process takes place, with the only difference that the V in prominent position is composed of |U| and |A|. The same delinking of the |A| element in the stressed V occurs and it is triggered by the same element than in (42), namely |I|. The difference is that the plural form in (43) is not left with an |I| element but with |U|. Therefore, the stressed vowel is raised from /o/ into /u/.

Metaphonic diphthongization requires, first, an assumption: the open-mid vowel which undergoes it, namely [ɛ] or [ɔ], is constituted by two CVs. Consequently, the elements are attached to two V positions and this is made possible by the |A| element that, being the head, keeps the two CVs together. When metaphony takes place, the element |A| is detached from one of its V positions, namely the leftmost one, the head; but its link to the second V is preserved. The other element keeps its links to the two Vs but is not capable of keeping the CVs together. As a result, the vowel breaks into a diphthong. In (44) and (45) two examples are represented:

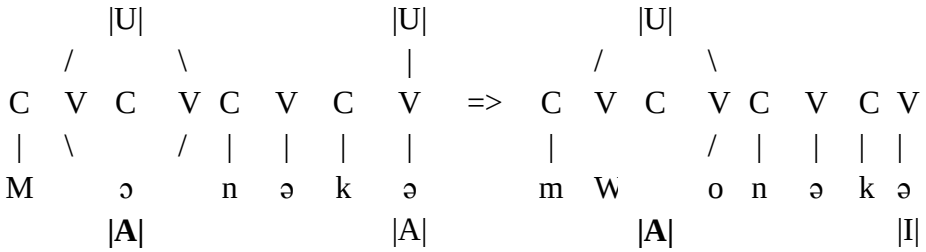
(44) ˈpɛrə - ˈpjerə

foot.SG – foot.PL



(45) ˈmɔnəkə - ˈmwonəʃə

monk.SG – monk.PL

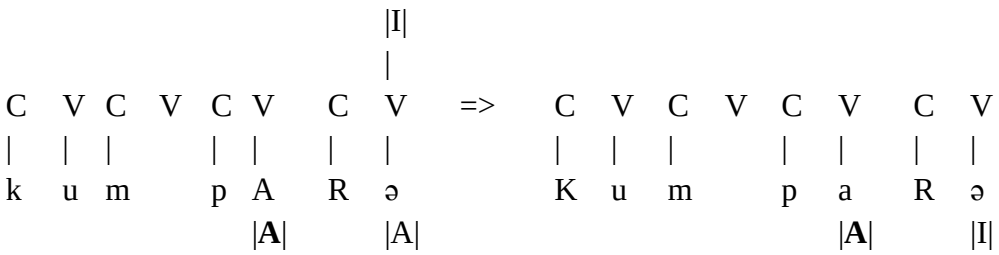



In (44) and (45) the CV structure of two words in their singular and plural forms, namely *ˈpɛrə* - ˈ*pjerə* and ˈ*mɔnəkə* - ˈ*mwonəʃə*, is reproduced. Both nouns have an open-mid vowel in the stressed syllable of the singular form. The open-mid vowels, namely /ɛ/ and /ɔ/ for (40) and (45) respectively, cover two CVs in the underlying representation, hence, their elements are attached to two V positions. This, I assume, is due to |A| being the head and allowing a bigger structure of the vowel. Moreover, the word-final vowels of the singular of the two examples consist of two elements. On the other hand, only one element is attached to the leftmost V in the plural form in both cases. The lack of the |A| element in the final vowel of the plural needs to be licensed by the stressed vowel. Therefore, |A| is demoted from its head position, the leftmost one, but it remains attached to the second V position. On the other hand, the element |I| in (44) and the element |U| in (45) are still attached to both V positions but they cannot preserve the integrity of the vowel. Consequently, the two V positions split and the vowel is diphthongized, resulting into /je/ in (44) and in /wo/ in (45).

Demotion of |A| does not occur when the stressed vowel is composed by only |A|, only |I|, or only |U|. When |A| is the only element of the prominent vowel (see the example in 46), the process does not take place because the loss of |A| would lead to the presence of /ə/ in a stressed position and that is not possible in the dialect. On the other hand, in the case of only |I| or only |U| in the stressed vowel (see 47 and 48), no element |A| is present, hence, its demotion is not possible.

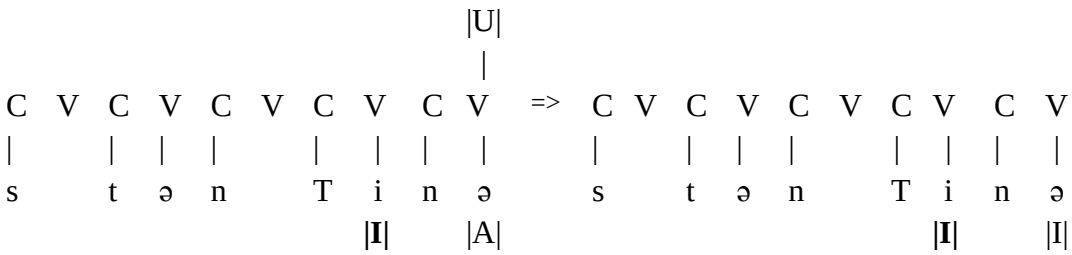
(46) |A| as the only element in the stressed vowel

kumˈparə - kumˈparə
pal.SG – pal.PL



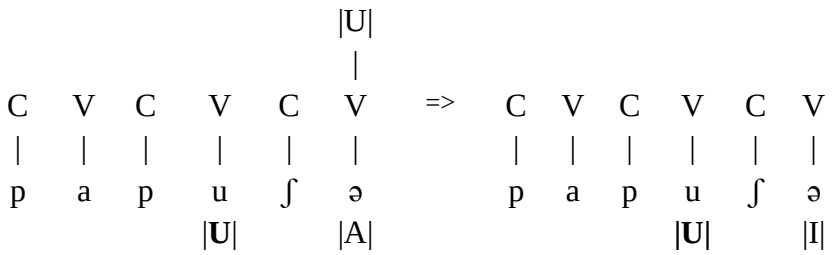

(47) |I| as the only element in the stressed vowel

stənˈtinə - stənˈtinə
intestine.SG – intestine.PL




(48) |U| as the only element in the stressed vowel

paˈpuʃə - paˈpuʃə
slipper.SG – slipper.PL




In conclusion, in this section, an analysis of the two types of metaphony was given. First, the demotion of |A| in metaphony resulting into raising was illustrated. In this case the element is detached from its V position and is lost.

Secondly, the analysis of metaphonic diphthongization showed that the same process of demotion also affects open-mid vowels. The different outcome is due to the fact that the |A|

element, which was attached to two V positions, is delinked only from the leftmost position and preserved in the second one.

Finally, the instances in which the process does not take place were taken into account and analyzed. When |A| is the only element in the stressed vowel, it cannot be demoted. On the other hand, when either |I| or |U| is the only element in the stressed vowel, there is no |A| element which could possibly be demoted.

## 4.3 RF within CVCV Theory

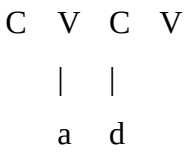
In this section RF in Airolano is analyzed within CVCV theory. To do so, first, the account for lexically encoded RF in CVCV framework elaborated by Passino (2013) is presented. Then, the framework is applied to the data collected from the dialect of Airola.

### 4.3.1 RF in CVCV Theory

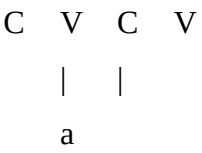
Passino (2013) gives an analysis within CVCV framework of the different types of RF. What is relevant here is her analysis of lexically encoded RF, which is the phenomenon attested in Airolano and in other southern Italian dialects.

Lexically-induced RF, which is also defined as *morphological raddoppiamento* by Chierchia (1986), is triggered by specific lexical elements**.** The group of lexical triggers is commonly composed by feminine plural and mass determiners, demonstrative, indefinite and qualifying adjectives, some prepositions, for example “with” and “for”, the third person singular of the auxiliaries “to have” and “to be”, the negation, etc (for a full list see Maturi 2002: 108-21) . These items lost a word-final consonant but some trace of it was preserved in their underlying representation and is synchronically still present. Passino (2013: 336) proposes that the trace actually consists in a word-final empty CV. The empty CV was linked to the word-final consonant. Later on, the consonant was lost but the CV, which was left empty, was preserved in the underlying representation. Consequently, the empty CV is present lexically, as it can be seen in (49b):

(49) a. LAT.




b. IT.



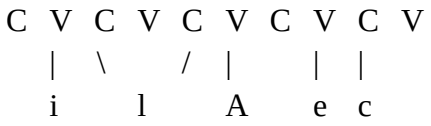

(Passino 2013: 336-337)

In (49), the representations of *ad* in Latin and of *a* in Italian are shown. In the latter representation, an empty CV is present, which once hosted /d/. Passino (2013: 337) assumes that the association line in the C position of the empty CV is still present. This line is what determines the gemination of the initial consonant of the following word.

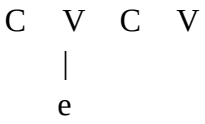
### 4.3.2 Analysis

The feminine plural definite article of Airolano, namely *e*, derives from the nominative of the Late Latin feminine demonstrative pronoun *ILLAEC, as proposed by Loporcaro (1997) and Borrelli (2002) for Neapolitan. I assume that the pronoun lost its word-final consonant but the CV to which it was attached remained. As a consequence, an empty CV is synchronically still present in the underlying representation of the lexical element (see 50 and 51).

(50) Latin feminine demonstrative pronoun




(51) Feminine plural definite article in Airolano




As proposed by Passino (2013), a CV that is not attached to any melodic material is part of the CV structure of the determiner. The empty CV gets, then, attached to the following word-initial consonant causing its gemination, as it can be observed in the following examples:

(52) a pəˈleə - e **p**pəˈleə
the.FEM.SG caprice.SG – the.FEM.PL caprice.PL

| C | V | C | V# | C | V | C | V | C | V |
|---|---|---|---|---|---|---|---|---|---|
| | \| | \ | | / | \| | \| | \| | | \| |
| | e | | P | | ə | l | e | | ə |

(53) a pəttʃəˈrellə - e **p**pettʃəˈrellə
the.FEM.SG girl.SG the.FEM.PL girl.PL

| C | V | C | V# | C | V | C | V | C | V | C | V | C | V | C | V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | \| | \ | | / | \| | \ | | / | \| | \| | \| | \ | | / | \| |
| | e | | P | | e | | tʃ | | ə | r | e | | l | | ə |

(54) a ˈkjantə - e ˈ**k**kjantə
the.FEM.SG plant.SG - the.FEM.PL girl.PL

| C | V | C | V# | C | V | C | V | C | V |
|---|---|---|---|---|---|---|---|---|---|
| | \| | \ | | / | \| | \| | | \| | \| |
| | e | | K | | ja | N | | t | ə |

In (52), (53) and (54), the empty CV of the determiner is realized by geminating the initial consonant of the following word, that is /p/ for (52) and (53) and /k/ for (54). This gemination is created through a link between the initial consonant of the noun and the empty CV of the determiner. This link entails that the consonant is lengthened.

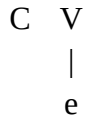
The hypothesis of a presence of an extra CV in the feminine plural determiner is further confirmed when the article happens to be isomorphic with the masculine plural one (which was the case for two of the informants, as it was shown in (25), here repeated in (55)).

(55) o təlefoˈninə - e təlefoˈninə
the.MASC.SG cellphone.MASC.SG the.MASC.PL cellphone.MASC.PL
a ˈpennə - e ˈ**p**pennə
the.FEM.SG pen.FEM.SG the.FEM.PL pen.FEM.PL

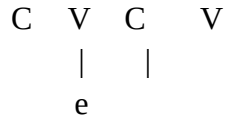
Despite their isomorphism, RF only takes place with the feminine plural determiner and never with the masculine plural article. This proves that, in comparison with the masculine plural, the feminine plural article presents an extra CV, while its masculine counterpart does not. A representation of the claim is given in (56):

(56) Isomorphic definite plural articles

(a) Masculine plural definite article




(b) Feminine plural definite article




As can be observed by comparing (a) and (b) in (56), the two determiners present two different CV structures. In fact, the masculine plural article only has one CV in its underlying representation. On the other hand, the feminine plural determiner has two CVs, one of which is empty. Therefore, only the feminine triggers RF, while the masculine article cannot.

The empty slot present in the representation of the feminine plural element could be filled by the vowel of the element itself, instead of the following word-initial consonant. This, however, never happens. A hypothesis why the empty CV cannot be filled by lengthening the vowel of the determiner can be proposed by taking into account Chierchia (1986). He assumes that in word-final position a stressed vowel cannot be long (Chierchia 1986: 12). Furthermore, he claims that across word boundaries, consonantal gemination is the only attested repair strategy and that vowel length cannot be lexical. He proposes this to be valid for both stress-induced and lexically encoded RF.

For the specific case of feminine plural definite article in Airolano, the vowel of the determiner cannot indeed be attached to the empty CV. This is the case because the determiner is a clitic in pre-tonic position, which cannot be long. In fact, even if it was lengthened, vowel reduction would take place and the vowel would be shortened again. I consider this assumption to be potentially valid for other instances of lexically based RF in Airolano as well.

About Chierchia's (1986) claim according to which consonantal gemination is the only possible strategy among word boundaries, I wish to suggest that the incapability of the vowel of the determiner to take over the extra length is simply due to its position in relation to stress. Regarding, the following word-initial element, instead, I do not exclude the possibility

that the extra position could be filled by a word-initial vowel. This does not apply to definite articles because *l'* instead of *e* is present when preceding a word starting with a vowel. But some research is needed to support this observation.

## 4.4 Metaphony and RF in complementary distribution

In this section first the distribution of metaphony and RF in the corpus is briefly summarized, then, their division of labor is presented. Afterwards, an element based analysis of the vowel suffixes of masculine and feminine nouns and of their determiners is proposed in order to understand the meaning of the morphological distinction, synchronically represented by RF versus metaphony. At last, the analyses are unified with the CV representation of the noun phrases and the outcome is described.

### 4.4.1 Metaphony and RF in complementary distribution

As described in section 3.3, which presented the occurrence of metaphony and RF in the collected data, the two phenomena happen to be in some kind of complementary distribution in Airolano.

In the next section an analysis of the vowel suffixes of masculine and feminine nouns and their determiners within the framework of Element Theory is proposed. To explain, starting from Passino's (2009) analysis of Italian nominal inflection, an analysis of the nominal inflection in Airolano is given in order to compare the internal structure of elements of the vowels marking masculine and feminine plural. It is important to highlight that the word-final vowels before the reduction takes place are taken into consideration, hence, when they still preserve all their elements. Afterwards, the determiners are analyzed within the same framework, but taking into account also their CV structure, in order to shed some light on the structural differences of the two genders.

### 4.4.2 Analysis

Passino (2009: 65) assumes that inflectional noun suffixes in Standard Italian are composed by one element referring to the word class of the noun and another element referring to number. She proposes that there are five noun classes and that the element |A| indicates

singular, while |I| indicates plural (Passino 2009: 66). The Italian nominal inflectional classes identified by Passino (2009) are presented in (57):

(57) Italian nominal inflection classes

| | |
|---|---|
| Class 1 sing /o/ = |U, A| | pl /i/ = |I| |
| Class 2 sing /a/ = |A| | pl /e/ = |I, A| |
| Class 3 sing /e/ = |I, A| | pl /i/ = |I| |
| Class 4 sing /a/ = |A| | pl /i/ = |I| |
| Class 5 = uninflected | |

(Passino 2009: 66)

Considering the inflectional suffixes of the masculine and feminine nouns of the data collected from Airolano, the following opposition emerges:

(58) inflectional suffixes in the corpus of Airolano

| | Singular | Plural |
|---|---|---|
| Masculine 1[5] | /ɔ/ = |A, U| | /i/ = |I| |
| Masculine 2 | /ɛ/ = |A, I| | /i/ = |I| |
| Feminine | /a/ = |A|[6] | /ɛ/ = |A, I| |

As can be observed in the table in (58), the three noun groups present the element |A| indicating singular and |I| indicating plural. But, focusing on their plural inflectional suffixes, a difference between feminine nouns and masculine ones can be noticed. Specifically, while the feminine plural still has both elements indicating the noun class and the plural number, the masculine nouns only present the element for plural number, that is |I|. Consequently, masculine appears to be weaker than feminine, having only number in the plural and not class, while feminine has both. In (59) some examples are given (the vowels in brackets represent the original vowel, before the reduction taking place):

[5] Some of the nouns that are synchronically considered to be part of this group derived from the Latin fourth declension, hence, they ended in /u/. But they were reanalyzed as being part of the other group because of the influence of Standard Italian on the dialect. Moreover, they present a lexicalized metaphony both in the singular and plural which is not relevant to the current analysis.

[6] I assume that two |A| elements, one for class and another for number, mark the feminine singular but, due to the impossibility of two |A|'s to display, only one appears.

(59) a. ˈpɔrtə (/ɔ/) = |A, U| -ˈpwortə (/i/) = |I|
harbour.SG harbour.PL

b. ˈprɛvətə (/ɛ/) = |A, I| -ˈprjevətə (/i/) = |I|
priest.SG priest.PL

c. ˈprɛtə (/a/) = |A| - ˈprɛtə (/ɛ/) = |A,I|
stone.SG stone.PL

The same situation is found with definite articles, as we can observe in the table in (60). In fact, the masculine plural determiner only presents the element |I|, while the feminine plural presents both |A| and |I|. On the other hand, in the singular the feminine determiner only has |A|, while the masculine has two elements, namely |U| and |A|.

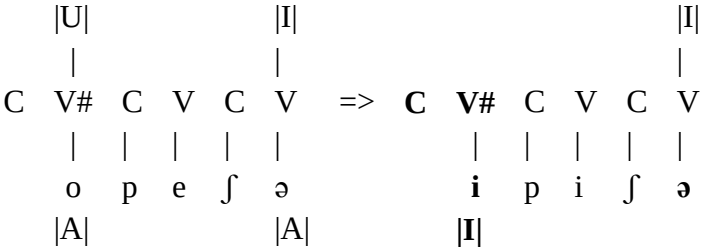
(60) Elements constituting the definite articles

| | Singular | Plural |
|---|---|---|
| Masculine | o = |U, A| | i = |I| |
| Feminine | a = |A| | e = |I, A| |

Adding the element-based analyses to the CV representation of the noun phrase, it can be concluded that there is, indeed, some difference in the gender marking on the noun. This difference becomes visible through the opposition between presence of metaphony in masculine plural nouns and its absence in feminine plural ones**.** In fact, the lack of a second element in the inflectional suffix of masculine plural creates the right environment for metaphony to take place. On the other hand, at the level of the determiner, masculine gender occurs to be two times weaker than feminine. In fact, the feminine plural definite article has an extra CV due to historical reasons (as proposed in section 4.3); furthermore, it also presents an extra element in comparison to the masculine (see 61 and 62).

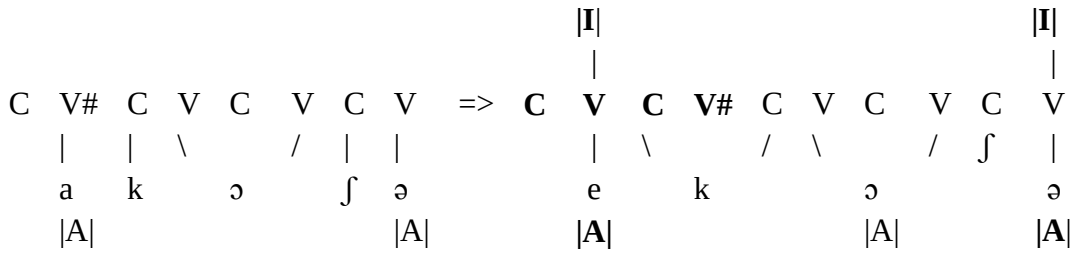
(61) o ˈpeʃə - i ˈpiʃə

the.MASC.SG fish.SG - the.MASC.PL fish.PL




(62) a ˈkɔʃə - e ˈkkɔʃə

the.FEM.SG leg.SG - the.FEM.PL leg.PL




The masculine noun *ˈpeʃə - ˈpiʃə* in (61) has only one element marking number, in the plural form. On the other hand, *ˈkɔʃə*, in (62), which is a feminine noun, has two elements in its plural, namely |A| indicating class and |I| marking plural. Moreover, the definite articles present a similar difference: the masculine plural one only has one element, namely the one indicating plural, that is |I|; while the feminine has both |I| and |A|, indicating plural and feminine class. In addition, the feminine plural definite article has an empty CV in its underlying representation (that triggers RF).

Therefore, the division of labor of two different phenomena, such as RF and metaphony, acquired morphological value and casually highlighted the asymmetry between masculine plural and feminine plural, showing the weakness of the former.

Subsequently, this division of labor entered in the grammar of the dialect and was extended to other instances. This explains why in (33) (which is repeated below) the feminine plural does not present metaphony, despite the presence of the perfect environment for its occurrence. To clarify, metaphony acquired the value of gender marking, consequently, it cannot take place in a feminine noun.

(33) a tələviˈsjonə (/ɛ/) = |A, I| - e ttələviˈsjonə (/i/) = |I|
the.FEM.SG television.FEM.SG the.FEM.PL television.FEM.PL

To sum up, RF and metaphony are distinct phenomena which developed separately in the nominal class of the dialect of Airola. Synchronically, they create morphological distinction by differentiating feminine plural from masculine plural. Furthermore, their interaction also revealed a structural weakness of masculine plural in comparison to feminine plural. In fact, it was shown that the former lacks the element properly marking masculine. The same situation is attested both in the nominal class and in the element composition of definite articles.

## 4.5 Conclusion

This chapter is composed by four sections. In the first section (4.1) the frameworks on which the analysis of the data from Airolano has been based was briefly introduced. First, the basic aspects of CVCV theory (Scheer 2004) have been outlined, which assumes that syllable structures are only of one type, namely CV. Second, Element theory (Backley 2011) has been presented. This theory accounts for the composition of vowels as the result of the combination of the three elements |A|, |I|, and |U|; furthermore, the claim of Pöchtrager (2006), according to which |A| has a special status, has also been taken into consideration.

In section 4.2, the analysis of metaphony as particle demotion elaborated by Maiden (1991) has been described. According to it, metaphony consists in the demotion of the element |A| in the stressed syllable under the influence of the post-tonic syllable. Afterwards, the analysis has been applied to the data that I collected which were affected by metaphony. Moreover, by assuming that |A|, that has a special status, can keep together two CVs, I propose a possible way to account for metaphony as diphthongization, which does not need repair strategies.

Afterwards, section 4.3 focuses on RF and CVCV theory. Firstly, an outline of the analysis of RF within CVCV first proposed by Passino (2013) has been given. Within that framework, lexically-based RF is caused by an empty CV present in the underlying representation of the trigger. Then, the same framework has been used to account for RF in Airolano. In addition, it has been hypothesized that, in the specific case of the feminine plural definite article, the vowel of the determiner cannot fill the extra empty CV for reasons of stress. In fact, the definite article is a clitic in pre-tonic position, hence, it cannot be constituted by a long vowel.

Finally, in section 4.4, the two phenomena, metaphony and RF, were taken into consideration together. The data showed that they are in a kind of complementary distribution which made them acquire a morphological distinctive role. In fact, the two phenomena interact in the way that metaphony occurs to mark masculine plural, while feminine plural is characterized by the taking place of RF. Furthermore, the comparison of the two processes within the DP highlighted a difference at element level between masculine plural and feminine plural. In fact, masculine plural was proven to be weaker than feminine plural. In addition, the CV structure of the definite articles also proved to be different between masculine plural and feminine plural in that the latter has an empty CV in its underlying representation.

The two phenomena, RF and metaphony, were first analyzed separately; subsequently, they were compared in order to observe deeper differences between the two genders in plural noun phrases.

# 5. Other and previous analyses

In this chapter previous and alternative analyses of the two phenomena are summarized. Firstly, different approaches to metaphony are described, exploring, then, the strategies elaborated in order to account for its problematic aspects. Secondly, some of the various analyses proposed for RF are presented.

## 5.1 Metaphony

Metaphony consists in the raising or diphthongization of a stressed vowel under the influence of a non-adjacent following high vowel (Rohlfs 1966, Fanciullo 1994, Ledgeway 2009, Maiden 1991). It usually affects mid or low mid vowels but in a few varieties it can also affect the low non-mid vowel *a* (Maiden 1991). However, the most common pattern is the one resulting in diphthongization even though the outcome can vary (Calabrese 2011: 2636). In the table below (63), a list of all the possible outcomes of metaphony attested in Italian varieties is given:

(63) Metaphonic patterns

| | | | |
|---|---|---|---|
| high mid | /e/ | → | /i/ |
| | /o/ | → | /u/ |
| low mid | /ɛ/ | → | /jɛ/ or /je/ or /e/ |
| | /ɔ/ | → | /wɔ/ or /wo/ or /o/ |
| low non-mid | /a/ | → | /ɛ/ or /je/ |

(Maiden 1991: 112)

In the following paragraphs some previous analyses of the phenomenon are presented. First, the analysis made by Sluyters (1988) and, then, the one by Nibert (1988) are described. Afterwards, Calabrese's (2011) analysis and the one elaborated by Walker (2011) are outlined.

### 5.1.1 Sluyters (1988)

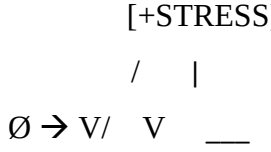
Sluyters bases his analysis on data from the Apulian dialect of Francavilla-Fontana. In the dialect metaphony affects both mid and open-mid vowels. Moreover, the phenomenon can consist in either raising or diphthongization. He accounts for the two different outcomes by assuming that they are due to different processes.

Regarding metaphony causing raising, he proposes that it consists of a spreading of the [HIGH] feature.

On the other hand, Sluyters claims that it is not possible to analyze diphthongization as being a different outcome of the same process which causes raising. The different output is due to a different underlying specification (Sluyters 1988: 174). He assumes that diphthongs consist of two vowels linked to the same syllable nucleus. In order to give an account of the process, he proposes three rules which are external to metaphony, namely vowel insertion, metathesis and feature filling.

First of all, the second vowel position of a diphthong is determined by the stress (64).

(64)




(Sluyters 1988: 180)

As a consequence, two vowel positions are present, of which one is filled and the second is empty. The empty V undergoes spreading of [+HIGH]; in other words, proper metaphony applies.

The diphthong resulting from these first two processes undergoes internal metathesis and the features [+LOW] and [+HIGH] are spread to the other V slot, once being delinked from their original slot. Finally, the second V is filled with [-BACK] and [-ROUND], while the underlying specification of the first V remains.

### 5.1.2 Nibert (1998)

In his analysis of metaphony, Nibert (1998) excludes the use of [high] features. He motivates the choice by observing that [+high], together with [ATR] and [low], define the same single parameter of vowel height.Therefore, he proposes to use the model elaborated by Clements

(1989) to give an analysis of metaphony and other phonological processes attested in the dialect of Servigliano.

The model is based on the assumption of the existence of a single binary feature, namely [open], which is composed by different tiers. Tiers are hierarchically organized and are dominated by an aperture node (Nibert 1998: 67).

The [open] feature divides vowels into two primary height registers, which are defined upper (-) and lower (+). Subsequently, the upper register is subdivided in two secondary registers. In addition, some varieties present a further subdivision which forms two tertiary registers (Nibert 1998: 94) (see table in 65):

(65)

Hierarchy of feature values for a voweell system of four heights (center-embedding)

| | (( i, u ( | e, o ɛ, ɔ )) | a ) | |
|---|---|---|---|---|
| [open$_1$]: | – | – – | + | (primary registers) |
| [open$_2$]: | – | + + | | (secondary registers) |
| [open$_3$]: | – | – + | | (tertiary registers) |

(Nibert 1998: 94)

By accounting for metaphony within this model, it can be observed that the triggers, that are [i] and [u], are grouped together because they are both [-open] on tier two. Furthermore, all target vowels for metaphony present [-open] on tier one. Consequently, metaphony can be considered as consisting in spreading of [-open$_2$] to vowels being characterized by [-open$_1$] (Nibert: 1998:93). Moreover, [-open] spreading occurs on tier three when metaphony affects an open mid vowel. On the other hand, the feature spreads on tier two when the target is a closed mid vowel (Nibert 1998: 97).

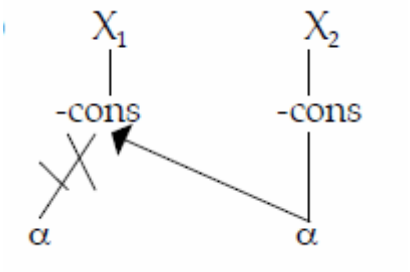
### 5.1.3 Calabrese (2011)

Calabrese's (2001) analysis is based on the assumption that metaphony consists in the spreading of a feature from a vowel to another, namely from the word-final vowel to the vowel in the stressed syllable. In the case of Romance varieties, the spreading feature is usually a height feature (Calabrese 2001:2631).

Before presenting his analysis Calabrese gives some background information about metaphony. He observes that the typical targets of the phenomenon are the mid [+ATR] vowels /e/ and /o/ and that they undergo raising. Low-mid [-ATR] vowels, instead, either turn into high [+ATR] vowels or are diphthongized. Therefore, metaphony consists in spreading of the feature [+ATR].

Calabrese (2011) proposes a unified account for both metaphony resulting in pure raising and the one resulting in diphthongization. According to his analysis, in both cases all stressed mid vowels are raised regardless of whether they have a [+ATR] or [-ATR] feature. This is due to the rule in (66):

(66) where $x_1$ is the head of the main stress foot and α is a height feature (i.e. [high], [low], or [ATR])




(Calabrese 2011: 2658)

Consequently, mid [+ATR] vowels become high [+ATR]. On the other hand, mid [-ATR] vowels turn into high [-ATR] ones. However, the latter case explains only one of the possible outcomes for mid [-ATR]. In fact, Calabrese (2011: 2640) assumes the presence of a constraint in the instance in which the vowel is diphthongized. The constraint, namely *[+high, -ATR], does not allow the change from mid [-ATR] to high [-ATR]. As a result, a repair 'fission' is triggered. The repair 'takes a feature bundle containing an illicit combination of features and breaks it into two different feature bundles, each containing one of them' (Calabrese 2011: 2640).

### 5.1.4 Walker (2011)

Walker (2011) accounts for vowel harmony within the Optimality Theory framework. In her analysis, the phenomenon of metaphony is due to the presence of a feature [height], which

includes [ATR], in a non-prominent position. The feature needs to be licensed by the presence of the same feature in prominent position (Walker 2011: 173). According to this approach, "segments or segmental properties that are subject to licensing effects are required to be structurally affiliated or bound in some way with a licensing unit, such as a prominent position, a particular prosodic constituent or configuration, etc" (Walker 2011: 36).

She proposes three types of licensing. However, only two are relevant here, namely identity and indirect licensing. To explain, in identity licensing a feature present in non-prominent position is licensed by the presence of the same feature in the prominent position. But positions which occur in between do not present the feature. On the other hand, in indirect licensing the feature extends over both positions, the prominent and the non-prominent one (Walker 2011: 41).

Walker postulates the need of post-tonic vowels with [+high] feature to have this same feature licensed by a stressed syllable in the following constraint: License ([+high]/σ post-tonic, ˈσ). The constraint dominates IDENT-IO (F), which preserves the specification of a feature characterizing the input in the output; consequently, the [height] feature spreads to the prominent position (Walker 2011: 48).

In addition, in order to justify the instances of metaphony consisting in diphthongization, she, like Calabrese (2011), assumes a *[+high, -ATR] constraint that prevents the occurrence of [+ high, -ATR] vowels.

## 5.2 Raddoppiamento Fonosintattico

Raddoppiamento Fonosintattico consists in the gemination of a word-initial consonant under the influence of a preceding word. Diachronically, the phenomenon is due to consonantal length which was preserved after by the loss of a word-final consonant (Loporcaro 1997). This led to the development of lexically induced RF, that is the type of RF present in various southern Italian dialects, including Airolano. Furthermore, the next stage of the phenomenon, which is attested in Standard Italian, is constituted by a reanalysis of the extra empty position as being caused by word-final stress (Loporcaro 1997). In the following sections some previous and alternative analyses of the process of RF are outlined, namely Leone (1962), Fanciullo (1986), Nespor & Vogel (1986), Repetti (1991), Bullock (2000) and Borelli (2002).

### 5.2.1 Leone (1962)

Leone (1962) focuses on RF in Sicilian but starting from the one affecting Standard Italian. In this way, he aims to give a complete and unifying account of the phenomenon in the different varieties. RF is triggered in Standard Italian by a word-final stressed vowel. According to him, the same behavior is considered to be found in Sicilian, where the words causing RF are monosyllabic elements deriving from bi-syllabic words of which the stressed syllable is the one that is kept. On the other hand, when the monosyllable consists in the syllable which was not stressed in the original word, RF cannot take place (Leone 1962: 165).

Furthermore, he considers the RF to be caused by a word-final consonant that was lost. (Leone 1962: 166). In addition, he observes that RF fails to take place when the elements are not part of the same "group"; in other words, when some kind of pause occurs between the two of them (Leone 1962: 169). It is important, though, to highlight that, in his account, the pause described is a prosodic one.

### 5.2.2 Fanciullo (1986)

In his work, Fanciullo (1986) proposes a syntactic analysis of RF; his focus is on the type of RF attested in southern Italian dialects, namely the lexically induced one. However, he includes a description of RF attested in Standard Italian and in Tuscan varieties in order to give a complete picture of the entire phenomenon. RF is considered as being derived from assimilation of a word-final consonant and a word-initial consonant. Subsequently, the word-final consonant was lost but the process continued taking place. Moreover, in some cases, he claims, the trigger of RF still preserves the final consonant in the underlying representation, which is realized in some contexts (Fanciullo 1986: 93).

First of all, he describes the instances in which RF does not take place. Gemination does not occur when the word-initial consonant is already long or already has a reinforced articulation. Another instance in which the consonant is not lengthened is when it is part of a consonant cluster (Fanciullo 1986:70).

Secondly, he also notices that, in certain cases, the consonant affected by RF does not only undergo lengthening. In fact, when the consonant is a voiced stop, also its place and, in some instances, even mode of articulation undergo some changes. Voiced stops, in southern

Italian dialects, present a "strong" and a "weak" realization. The former consists in a occlusive articulation of the consonant, while the latter in a fricative one (Fanciullo 1986: 71).

By comparing RF in Standard Italian with the one attested in southern Italian dialects, the author highlights that it is not only the list of items triggering the process that diverges; another difference is that in southern Italian dialects the trigger and the following element have to be part of a minimal phrase for the phenomenon to take place (Fanciullo 1986: 85). Consequently, the items characterized by [+RF] do not cause reinforcement of the following consonant if the two are not rigidly connected (Fanciullo 1986:88). As a result, the occurrence of RF in southern Italian dialects is governed by more restrictions than the one of RF in Standard Italian.

Finally, he also observes which elements act as lexical triggers of RF. Among them he lists the definite articles for feminine plural and neuter singular, which actually indicates uncountable nouns. Also other determiners of the mentioned genders cause RF (Fanciullo 1986: 87).

### 5.2.4 Nespor & Vogel (1986)

Nespor & Vogel's (1986) analysis of RF focuses on the stress-induced type. They consider RF to apply within the domain of the phonological phrase. They observe that stress-induced RF applies to the left of the head of a phrase and not to its right (Nespor & Vogel 1986: 167). In addition, it can affect any item which is found in that position. They propose that its attestation to the left of the head is due to the fact that the left side of the head of a phrase in Italian is not recursive (Nespor & Vogel 1986: 168).

RF occurs when phonological conditions are met. These conditions vary according to the regional variety of Italian. Nespor & Vogel (1986: 38) identify two conditions for the Tuscan variety, one on $word_1$ and one on $word_2$. The phonological condition on the former is that it must end in a stressed vowel; while, the condition on the latter is that its first syllable onset has to be either a single consonant or a consonant cluster, except one consisting of *s* followed by another consonant (Nespor & Vogel 1986: 38).

RF can either apply within a phonological phrase or outside of it, between two different phonological phrases. Its occurrence between two constituents not belonging to the same phonological phrase is due to restructuring on the prosodic bracketing (Nespor & Vogel 1986: 172). To clarify:

" A non branching phonological phrase, which is the first complement of X on its recursive side, is joined into the phonological phrase that contains X".

(Nespor & Vogel 1986: 173)

The restructuring of phonological phrases on the prosodic bracketing is illustrated in (67), where $\phi$ indicates "phonological phrase":

(67) […C C]$\phi$ [C]$\phi$ → […C C C]$\phi$

(Nespor & Vogel 1986: 173)

As can be observed, through the restructuring, two separated phonological phrases are merged together.

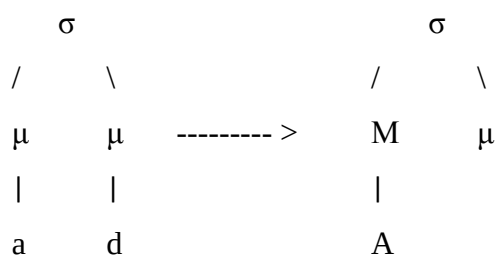
### 5.2.5 Repetti (1991)

Repetti (1991) gives a moraic analysis of RF. Her analysis is based on the claim that "RF is caused by an empty mora which is present in the underlying representation" (Repetti 1991: 307). This empty mora was once filled by a word-final consonant or by a long vowel. When the element was lost the mora that was left empty was kept. Consequently, the empty space is filled by geminating the initial consonant of the following word (Repetti 1991: ibidem).

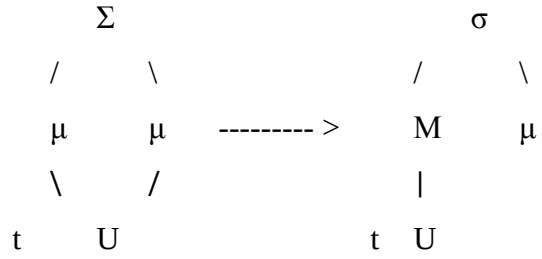
Furthermore, RF can also be seen as a rule of syllabic levelling. In fact, an empty unit is inserted in the underlying representation of words presenting stressed, open, light syllables. Then, the empty unit is filled by RF (Repetti 1991: 310).

In her model, light syllables are assumed to have one mora (μ), while heavy syllables have two moras (μμ). In Latin the final syllables of the words which now cause RF were bimoraic. To explain, they either presented a consonant or a long vowel. Therefore, she assumes that this extra mora was not lost with the loss of either the consonant or the double length of the vowel. Consequently, the trigger word lost the element which filled the extra mora but the mora was preserved in the underlying representation (Repetti 1991: 311), as can be seen in (68):

(68) a. ĂD > *a* ˈtoˈ




b. TŪ > *tu* ˈyouˈ




Repetti (1991: 311)

Therefore, RF can be considered, diachronically speaking, as a strategy of compensatory lengthening. In fact, its purpose is the preservation of a mora which otherwise would be lost.

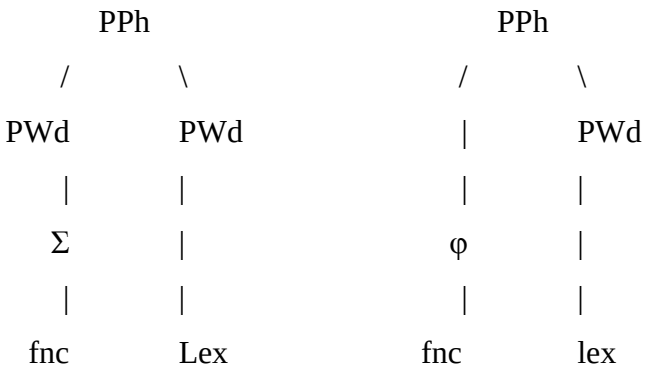
As a consequence, the synchronic taking place of the process can be described as a ˈmora preservation ruleˈ (Repetti 1991: 313). In fact, a consonant spreads back in order to fill the mora which occurs to be left empty. Supporting Chierchiaˈs (1986) analysis, she claims that the empty mora cannot be filled by vowel lengthening but only by consonantal gemination. Moreover, she observes that in Italian the filling of an empty mora can only occur from right to left (Repetti 1991: 314).

### 5.2.6 Bullock (2000)

In her contribution to *Phonological theory and the dialects of Italy*, Bullock (2000) proposes an analysis of RF in Neapolitan. She argues that the lexical items causing RF in Neapolitan are function words which present a ˈdoubleˈ prosodic structure. As a consequence, RF takes place when two opposite requirements, namely that certain syllables have to be bimoraic and that final vowels cannot be long, co-occur in the same context (Bullock 2000: 46).

First of all, she gives a list of lexical elements which trigger RF in the dialect. Among them feminine plural definite article appears together with its relative direct pronoun. Furthermore, she notices the semantic value of gemination, which distinguishes the masculine plural forms from the feminine plural ones (Bullock 2000: 48). Moreover, the gender marking role is played by all the feminine plural determiners. RF in the dialect, however, fails to occur when the word trigger and the following word are not rigidly connected (Bullock 2000: 49).
Secondly, she gives an analysis of the phenomenon within the alignment based theory. In the theory a distinction between lexical and function words is made. The latter are different from the former because they have unique phonological properties (Bullock 2000: 50).
According to Bullock (2000: 50), Neapolitan has two types of function words that differ from each other because of their prosodic properties. To explain, one type, that is the one consisting of word triggering RF, is minimally bimoraic, while the other type is directly parsed as a syllable (see 69).

(69) a. function word [+RF] b. function word [-RF]




Bullock (2000: 50)

The function words in (69) a. were once consonant final and bimoraic. Subsequently, the consonant was lost but the bimoraic representation of the syllable was retained and manifests only in a RF environment (Bullock 2000: 51). Therefore, a residue of the original phonological structure of the elements was lexicalized in the synchronic grammar of the language. Hence, the structure of the syllable and its prosodic weight do not coincide. This mismatch is what she defines as “double prosody”; furthermore, it causes a violation of well-formedness, as it can be observed in the constraint that she proposes (70):

(70) Double Prosody Constraint: *CV = μμ

A light syllable parsed as heavy violates well-formedness

(Bullock 2000: 52)

Therefore, RF in Neapolitan occurs because of this violation. In fact, the extra weight of the syllable needs to be realized in some way. On the other hand, other constraints (see 71) block other possible candidates that use other strategies to solve the violation but gemination (Bullock 2000: 53-54).

(71) a. FTBIN

The most harmonic form of a foot in a quantity sensitive language like Neapolitan is the bimoraic foot

b. FAITHFULNESS

c. WTIDENT: *V

Vowel lengthening cannot occur

Consequently, the only possible strategy available is RF and the best candidate happens to be the one in which the empty foot is filled by geminating the initial consonant of the following word.

### 5.2.7 Borrelli (2002)

Borrelli (2002), proposes an analysis of RF within Optimality Theory. In her work, three analyses are carried out, namely one for RF affecting Standard Italian and a central dialect group, one for RF in southern dialects and one for RF in northern ones. Subsequently, she elaborates an historical picture which can give a unifying account of the development of the different types of RF. Furthermore, she considers the phenomenon within the more general constraints organizing the moraic structure of Italian and the dialects of the peninsula.

From a synchronic point of view, in the underlying representation each vowel is linked to one mora and their link to an extra mora is due to stress (Borrelli 2002: 80). On the other hand, a high ranked constraint claims that word-final vowels cannot be long (Borrelli 2002: 81). Therefore, the lengthening of the vowel is blocked and a mora stays empty. Consequently, a following consonant is linked to the empty mora.

On the other hand, in southern Italian dialects the stress-induced RF fails to occur because the constraint according to which the head of a mora must be a vowel (NOCμ) (72) dominates the one according to which heavy syllables must be bimoraic (STRESSTOWEIGHT) (73) (Borrelli 2002: 92).

(72) NOCμ

The head of a mora must be a vowel

(Borrelli 2002: 77)

(73) STRESSTOWEIGHT

If stressed, then heavy, or stressed syllables must be bimoraic

(Borrelli 2002: 76)

Lexical RF takes place, instead, because the extra mora is part of the underlying representation of the item. In fact, it is not caused by word stress (Borrelli 2002: 92).

Diachronically speaking, she supports the three stages hypothesis made by Lorporcaro (1997). RF developed originally from the assimilation of a word-final consonant to the one of the following word. In a second stage, the word-final consonant was lost but an empty mora stayed in the underlying representation of the element. The second stage represents the lexically encoded RF. Finally, in the third phase, due to several word triggers having the stress on the last syllable, the cause of the process of RF was re-analyzed. Consequently, RF became stress-induced. The difference between lexical RF and stress-conditioned RF lays in a different ranking of two constraints, namely NOCμ and STRESSTOWEIGHT (Borrelli 2002: 111). To explain, in stress-induced RF, which characterizes Standard Italian and Tuscan varieties, STRESSTOWEIGHT is ranked higher than NOCμ. The opposite situation is seen in southern dialects where lexical-induced RF is attested. In fact, in them, NOCμ dominates STRESSTOWEIGHT (Borrelli 2002:112). The two different rankings can be seen in the following (74) and (75).

(74) southern dialects

MAXμ, *V:# >> **NOCμ** >> **STRESSTOWEIGHT** >> DEPμ

(75) central dialects (and Standard Italian)

MAXμ, *V:# >> **STRESSTOWEIGHT** >> **NOCμ** >> DEPμ

(Borelli 2002: 112)

The constraints MAXμ and *V:# mean that every mora in the input has to have a correspondent in the output and that word-final vowels cannot be long, respectively. According to the DEPμ constraint every mora in the output has a correspondent in the input (Borrelli 2002: 78).

Chronologically, the ranking present in southern dialects was the original ranking. Subsequently, a stage of which variation between the two hierarchies followed and, then, the new ranking was formed. Southern dialects stayed in the first phase, while central dialects and Standard Italian went through the different possible rankings and reached the final stage (Borrelli 2002: 112).

## 5.3 Conclusion

In this chapter other analyses which were given of metaphony and RF have been presented. The analyses relative to metaphony have been introduced first. Then, some accounts of RF have been described.

Four analyses of metaphony have been summarized in the section regarding the process. Firstly, the analysis proposed by Sluyters (1988) has been described. He assumes that metaphony consisting in raising and the one consisting in diphthongization constitute two different processes. The former is caused by spreading of [height] feature, while the latter is due to a more complex process. In fact, in Sluyters (1988) two vowel positions are present for the case resulting in diphthongization, and it is actually only the second position which undergoes metaphonic raising.

Secondly, Nibert's (1998) work has been introduced. He gives account of metaphony assuming the presence of an [open] feature. He formulates his analysis within Clements (1989) model. Considering the model, trigger vowels are grouped together and the same occurs with target vowels which are also grouped together.

Thirdly, Calabrese (2011) has been taken into account. He proposes a unified account of metaphony as raising and metaphony as diphthongization. According to him, both processes consist in vowel raising, despite the vowel being [+ATR] or [-ATR]. In order to justify diphthongization, he elaborates a constraint, namely *[+ high -ATR], that prevents the occurrence of vowels presenting these two features together. Consequently, the vowel diphthongizes so that the two features are preserved but kept separate.

Fourthly, Walker's (2011) analysis has been summarized. She describes metaphony as being due to the need of a [high] feature of a vowel in non-prominent position to be

licensed by the presence of the same feature in prominent position. She borrows the constraint elaborated by Calabrese (2011) in order to give account of diphthongization.

In the second part of the chapter various analyses of RF have been presented. The first analysis described has been the one of Leone (1962), who considers monosyllabic triggers of RF to derive from the stressed syllable of a bisyllabic word. Furthermore, he observes that in order for lexically encoded RF to occur the trigger and the target have to be directly connected; in other words, there must be no pause between the two.

Then, Fanciullo's (1986) work has been outlined. He gives a detailed description of the various outcomes of gemination in southern Italian dialects. He describes lexical elements triggering RF as having a [+RF] feature. The presence of the feature is due to some residue, in the underlying representation, of a final consonant that was lost. Moreover, he observes the necessity of trigger and target to be in the same minimal phrase for RF to take place.

Nespor & Vogel's (1986) analysis of RF in the Tuscan variety was briefly described.

Subsequently, the moraic analysis of RF proposed by Repetti (1991) has been described. She accounts for RF by assuming an extra mora which is left empty by the loss of material. Therefore, the empty mora is filled by the intial consonant of the following word.

Afterwards, Bullock's (2000) work has been introduced. According to her, in Neapolitan there are two types of function words. One of the types is bimoraic because of some residue of the original phonological structure of the word. Consequently, a mismatch between structure of the syllable and its prosodic weight is attested, which she defines "double proposdy". As a result, the mismatch needs to be repaired.

In conclusion, an outline has been given of the analysis elaborated by Borrelli (2002). Within Optimality theory, she formulates the constraints which generate RF: she also assumes the presence of an empty mora in the underlying representation of the trigger. The empty mora cannot be filled by the word-final vowel because of a constraint according to which word-final vowels cannot be long. Therefore, it is filled by the following consonant. Furthermore, she claims that the difference between lexically encoded and stress-induced RF consists in a different ranking of various constraints.

# 6. Conclusion & Discussion

In this thesis I gave an analysis of metaphony and lexical RF, which are found in the dialect of Airola (BN). Subsequently, I investigated the relation between the two distinct phenomena in distinguishing gender in the plural of nouns. In fact, in plural forms of nouns, metaphony occurs to mark masculine, while RF marks feminine. The complementary distribution of the phenomena is evident in the data, but its explanation within a theoretical framework has still to be fully elaborated.

The thesis is structured in four chapters. The first chapter introduces some background information regarding where the dialect is spoken and its characteristics, such as the vowel system, the attested vowel reduction, the nominal class and the definite articles. Furthermore, the occurrence of metaphony and RF in Airolano is also described.

In the second chapter, the description of the newly collected data proves the productivity of both metaphony and RF. In particular, RF occurs within every feminine plural DP. On the other hand, metaphony results to be more instable; but its productivity is supported by the fact that its attestation in modern nouns increases with the decreasing of the age of the participants. In addition, the nonce word test also gives proof of the productivity of metaphony. However, its degree of productivity varies according to the vowel undergoing the process: a hierarchy of productivity can be formulated. In fact, the most productive instance of metaphony is the one of [o] raising into [u], followed by [ɔ] diphthongizing into [wo]. Less productive, instead, are [e] turning into [i] and [ɛ] turning into [je], with the latter being the least frequent case. In addition, the data also show a complementary distribution of the two phenomena of metaphony and RF, the former being attested with masculine nouns and the latter with feminine ones. Even when the definite articles are isomorphic, RF still only occurs with feminine plural DPs. At the same time, metaphony only affects masculine nouns and fails to occur with feminine nouns, even when they present the right environment for its occurrence.

The third chapter contains the core analysis. The first section outlines the frameworks within which the analysis is elaborated, namely Element Theory (Backley 2011) and CVCV Theory (Scheer 2004). In the second and third section an analysis of metaphony and of RF are proposed. Moreover, in the section on the analysis of metaphony, which was considered to be demotion of |A| (as proposed by Maiden 1991), a different account for metaphony as consisting in diphthongization is proposed. To explain, the ability of the element |A| to attach

to two CVs isassumed and its demotion from its head position causes the breaking of the vowel into a diphthong. Then, in the section on the analysis of RF, it is showed that an empty CV is encoded in the underlying representation of the items triggering the process. Furthermore, it is proposed that the reason why the empty CV is not filled by the material of the determiner but by the following word-initial consonant is a matter of stress. To be more clear, in the case of the feminine plural definite article, the vowel [e] cannot attach to the extra empty CV because the determiner is in pre-tonic position, hence, it cannot be long. Finally, in the last section of the chapter, a unified analysis of the two phenomena, metaphony and RF, is proposed. To do so, the inflectional suffixes of the nouns, both feminine and masculine, are analyzed within Element Theory and the CV structure of their DPs is also observed. The comparison shows that, at element level, the masculine plural presents one element less than the feminine plural. In fact, masculine plural only has one element, while feminine plural has two. Therefore, the masculine plural results to be in some way weaker than the feminine. Furthermore, the same conclusion could be drawn by observing the CV structures of the CVs: the feminine plural determiner presents an extra CV while masculine plural does not.

The fourth chapter, then, consists in a brief summary of different previous and alternative analyses of both metaphony and RF.

In addition to the contribution made to documentation of southern Italian dialects and of the attestation of metaphony and RF in Airolano, the present work represents a step forward in understanding the two phenomena; it also highlights the presence of their complementary distribution, which is difficult to explain within a theoretical framework.

In the data, it is shown that metaphony and RF happen to be in complementary distribution in the nominal class and to create morphological distinction (section 4.4). In fact, masculine plural is affected by metaphony, while feminine plural presents RF. Further research is needed to pin down the exact cause of this distribution. A way to go would be to observe whether the two phenomena present something in common or related on a deeper level. By comparing them it can be seen that, in the case of RF, i.e. in feminine plural nouns, the extra material in the underlying representation, namely the empty CV, needs to be expressed in some way; therefore, because it is not possible for the vowel to become longer, due to its pre-tonic position, the following word-initial consonant expresses it by geminating (section 4.3). On the other hand, in metaphony, hence in masculine plural, some material, namely the element |A|, needs to be eliminated, at least partially (section 4.2). Consequently, the intuition is that RF involves a preservation, while metaphony involves weakening. A further observation could be made regarding the role played by the element |A| in both

phenomena. Recall that |A| is assumed to have a special status and to be able to attach to two CV positions, hence it represents length in some way. This is supported by the analysis of metaphony consisting in diphthongization (section 4.2.2). In fact, in those instances, the elements are linked to two CVs but it is actually |A| that preserves the integrity of the vowel. When |A| is detached from its leftmost position, the other element has not the ability of preserving the unity of vowel; consequently the vowel is diphthongized.

On the other hand, looking at RF triggered by the determiner *e*, which is composed by |A| and |I|, the former element would be expected to be able to attach to the empty CV. But this does not occur because of its pre-tonic position. In both cases, however, some "length", an |A| with two CVs, is either blocked (RF) or lost (metaphony).

Finally, another problematic aspect, which remains unsolved, is the question regarding the actual trigger of demotion of |A| during the process of metaphony. Specifically, the recession of |A| seems to be triggered by the absence of the same element in the following vowel. It is, however, problematic to formalize that a process is triggered by the absence of an element. In fact, alternative solutions were elaborated, such as, for example, the presence of the element |∀| (van der Hulst, forthcoming), which was discussed in section 4.2.1. However, the addition of a negative element violates the basic assumptions of Element theory, which postulates that the elements are monovalent. Consequently, such an analysis would require a change in the theoretical framework. Therefore, further research could go in either two directions: one, towards a modification of the original framework; second, towards a completely different way of accounting for metaphony. What seems clear is, though, that despite this problems at theoretical level, demotion of |A| seems to correctly describe what occurs in the data from Airolano.

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# Appendix 1

**The informants:**

| Informants | Gender | Age | Level of education | Occupation |
|---|---|---|---|---|
| A | F | 81 | Elementary school | Housewife |
| B | M | 76 | Elementary school | Farmer |
| C | F | 67 | Elementary school | Farmer |
| D | F | 59 | University degree | Employee |
| E | M | 58 | University degree | Employee |
| F | M | 28 | University degree | Student |
| G | M | 27 | University degree | Student |
| H | F | 18 | Secondary school | Student |
| I | F | 17 | Secondary school | Student |
| J | M | 15 | Secondary school | Student |

The informants were asked to give the translation into the dialect and the plural form of the following noun phrases:

Il dente *the tooth*

Il prete *the priest*

La pietra *the stone*

Il posto *the place*

L'intestino *the intestine*

Il telefonino *the cellphone*

Il capello *the hair*

Il polso *the wrist*

Il compare *the pal*

Il videoregistratore *the videorecorder*

Il buco *the hole*

La penna *the pen*

La pita

Il frigorifero *the fridge*

La pantofola *the slipper*

Il coniglio *the rabbit*

Il pollo *the chicken*

La pancia *the belly*

La testa *the head*

Il vetro (della finestra) *the window glass*

La papera *the goose*

La pianta *the plant*

La settimana *the week*

La ragazza *the girl*

La minestra *the soup*

La sedia *the chair*

Il capriccio *the caprice*

La terra *the earth*

La cappella *the chapel*

La mattina *the morning*

La camicia *the shirt*

La treccia *the braid*

La lingua *the tongue*

La ciliegia *the cherry*

La catena *the chain*

La cipolla *the onion*

La corda *the rope*

La gamba *the leg*

La corona *the crown*

La gola *the throat*

La colomba *the dove*

Il bambino *the child*

La bottega *the shop*

Il nervo *the nerve*

Il cappello *the hat*

Il monaco *the monk*

Il cuore *the heart*

Il fiore *the flower*

Il ragazzo *the boy*

Il pantalone *the trousers*

Il polmone *the lung*

Il ponte *the bridge*

Il portone *the door*

Il telefono *the phone*

Il fegato *the liver*

La maestra *the female teacher*

Il lettore mp3 *the mp3 player*

La televisione *the television*

Il piede *the foot*

Il mese *the month*

Il maestro *the male teacher*

Il pesce *the fish*

Il microfono *the microphone*

La porta *the door*

Il molare *the molar*

Il radiatore *the radiator*

Il dito *the finger*

La cuffia *the headphones*

La stampante *the printer*

Il caricatore *the charger*

Il pistone *the piston*

Il pidocchio *the lice*

La tazza *the cup*

La bambina *the (female) child*

Il motore *the engine*

Il carburatore *the carburetor*

La sospensione *the shock absorber*

Il sapone *the soap*

Il melone *the melon*

Il pitone *the python*

The participants were asked to give the plural of the following nonce words:

O kaˈsenə

o sciˈnonə

o tiˈnɛpə

o ˈciɔtə

## Appendix 2

| | | | | | |
|---|---|---|---|---|---|
| All | ˈrɛntə / i ˈrjentə | I | ˈrɛndə / i ˈrjendə | | |
| All | o ˈprɛvətə / i prjevətə | | | | |
| All | a ˈprɛtə / e ˈpprɛtə | | | | |
| All | o ˈpɔstə / i pɔstə | | | | |
| BFG | o stənˈtinə / i stənˈdinə | A C, E | o stənˈdinə / i stənˈdinə | DHIJ | o ntəˈstinə / i ntəˈstinə |
| BCFIJ | o təˈlɛfənə / i təˈlɛfənə | ADEGH | o tələfoˈninə/i tələfoˈninə | | |
| BFHJ | o kaˈpellə / i kaˈpillə | ACDEGI | o kaˈpillə / i kaˈpillə | | |
| F | o ˈpursə / i ˈpursə | CDEC | o ˈputs(in)ə / i ˈputs(in)ə | others | o ˈpol(t)sə/i ˈpol(t)sə |
| CF | o komˈparə/i kumˈparə | EGI J | o komˈparə / i komˈparə | ABD | o kumˈparə(jellə) / i kumˈparə(jellə) |
| All | o videoredʒistraˈto:rə / i videoredʒistraˈto:rə | I | o videoredʒistraˈto:rə / i videoredʒistraˈtu:rə | C | o rədʒistraˈto:rə / i rədʒistraˈto:rə |
| All | o pərˈtusə / i pərˈtusə | B | o pərˈtusə / e ppərˈtosə | A | o purˈtusə /i pərˈtusə |
| All | a ˈpennə / e ˈppennə | | | | |
| DEFG | a ˈpitə / e ˈppitə | | | | |
| CFHI | o frigoˈrifərə/ i frigoˈrifərə | BEGJ | o frigoˈrifərə / i friguˈrifərə | AD | o friguˈrifərə / i friguˈrifərə |
| FGHI | a paˈpoʃə / e ppaˈpoʃə | EJ | a panˈtɔfələ / e ppanˈtɔfələ | ABC D | o paˈpuʃə / i paˈpuʃə |
| All | o kuˈnijjə / i kuˈnijjə | A | o kuˈnuttʃə / i kuˈttʃə | I | o koˈnijjə / i kuˈnijjə |
| EFGJ | o puˈllast(r)ə / i puˈllast(r)ə | CD | o poˈllastrə / i poˈllastrə | ABH I | o po/uˈllə / i puˈllə a galˈlinə /e ggalˈlinə |
| AF | a ˈtripp ə / e ˈttrippə | All | a ˈpantsə / e ˈppantsə | | |
| All | a ˈkap ə / e ˈkkapə | | | | |
| All | a ˈlastrə / e ˈllastrə | I | o ˈvitrə / e ˈvvitrə | H | o ˈvetrə / i ˈvitrə |
| All | a ˈpapərə / e ˈppapərə | | | | |
| All | a ˈkjantə / e ˈkkjantə | | | | |
| BFGIH | a səˈmmanə /e ssəˈmmanə | ACDEJ | a sətti ˈmanə/e ssətti ˈmanə | | |
| FGHI | a waˈjonə / e (g)wwaˈjonə | ABCDEG J | a pəttʃəˈrellə/ e ppəttʃəˈrellə | | |
| All | məˈnɛst(r)ə / e mməˈnɛst(r)ə | | | | |
| All | a ˈsɛddʒə / e ˈssɛddʒə | D | a ˈsɛddʒələ / e ˈssɛddʒələ | | |
| All | a pəˈleə / e ppəˈleə | B | o kraˈpittʃə / i kraˈpittʃə | HI | o kaˈprittʃə /i kaˈprittʃə |
| All | a ˈtɛrrə / e ˈttɛrrə | | | | |
| All | a kaˈppɛllə / e kkaˈppɛllə | | | | |
| All | a maˈtinə / e mmaˈtinə | | | | |
| All | a kaˈmmisə / e kkaˈmmisə | | | | |
| F | a ˈtrettʃə / e ˈttrettʃə | All | a ˈtrettsə / e ˈttrettsə | | |
| All | a ˈlengwə / e ˈllengwə | | | | |
| All | a ʃəˈrasə / e tʃəˈrasə | | | | |
| All | a kaˈtenə / e kkaˈtenə | | | | |
| BCDEFH | a ʃiˈpollə / e tʃiˈpollə | AGIJ | a ʃəˈpollə / e tʃiˈpollə | | |
| BFGH | a ˈkɔrdə / e ˈkkɔrdə | ABCDEJ I | a ˈfunə / e ˈffunə | | |
| All | a ˈkɔʃə / e ˈkkɔʃə | | | | |
| All | a koˈronə / e kkoˈronə | | | | |
| All | a koˈpɛrtə / e kkoˈpɛrtə | | | | |
| All | a ˈgolə / e ˈggolə | | | | |

| | | | | | |
|---|---|---|---|---|---|
| DFG | a paˈlommə /e ppaˈlommə | ABCEJ | o paˈlummə / i paˈlummə | HI | a koˈlombə/e kkoˈlombə |
| F | o krjaˈturə / i krjaˈturə | EGHIJ | o krjaˈturə / e kkrjaˈturə | ABCD | o waˈjonə / e waˈjunə |
| FG | a puˈtekə / e ppuˈtekə | ABCDEJ | a poˈtekə / e ppoˈtekə | HI | a bboˈttegə/ e bboˈttegə |
| BCFHI | o ˈnɛrvə / i ˈnjervə | DEGJ | o ˈnjervə / i ˈnjervə | A | o ˈnjervə /i ˈnɛrvə |
| All | o kaˈppjellə / i kaˈppjellə | A | o kaˈppjellə / i kaˈppɛllə | | |
| All | o ˈmənəkə / i ˈmwonəʃə | G | o ˈmwonəkə / i ˈmwonəʃə | H | o ˈmənəkə i ˈmənəʃə |
| All | o ˈkɔrə / i ˈkɔrə | BG | o ˈkworə / i ˈkworə | C | o ˈkɔrə/ i ˈkworə |
| All | o ˈʃorə / i ˈʃurə | | | | |
| ACFGHI | o waˈjonə / i waˈjunə | BDEJ | o ˈddʒo(v)ənə/i ˈddʒu(v)ənə | | |
| All | o kaˈdzonə / i kaˈdzunə | | | | |
| DF | o purˈmonə / i purˈmunə | AEGHIJ | o polˈmonə / i pulˈmunə | BC | o polˈmonə / i polˈmonə |
| All | o ˈpontə / i ˈpontə | GHI | o ˈpontə / i ˈpuntə | | |
| ECFHIJ | o porˈtonə / i porˈtunə | ABDG | o porˈtonə / i purˈtonə | H | o porˈtonə / i purˈtunə |
| All | o təˈlɛfənə / i təˈlɛfənə | H | o təˈlɛfənə / i təˈljefənə | | |
| All | o ˈfegətə / i ˈfegətə | G | o ˈfegətə / i ˈfetəkə | | |
| All | a ˈmaest(r)ə / e ˈmmaest(r)ə | | | | |
| ABCDE | o ləˈttorə mp3 / i ləˈttorə mp3 | GHIJ | o ləˈttorə mp3 / i ləˈtturə mp3 | | |
| All | a təleviˈsjonə/ e ttəleviˈsjonə | HI | a təleviˈsjonə / i tələviˈsurə | | |
| All | o ˈpɛrə / i ˈpjerə | | | | |
| All | o ˈmesə / i ˈmisə | | | | |
| All | o ˈmaestrə / i ˈmaestrə | GH | o ˈmaestə / i ˈmaistə | | |
| All | o ˈpeʃə / i ˈpiʃə | | | | |
| FJ | o miˈkrɔfənə / i miˈkrwofənə | All | o miˈkrɔfənə / i miˈkrɔfənə | | |
| All | a ˈpɔrtə / e ˈppɔrtə | | | | |
| All | a ˈmɔlə / e ˈmmɔlə | HI | o moˈlarə/ i moˈlarə | | |
| EFGHIJ | o radjaˈtorə / i radjaˈturə | ABCD | o radjaˈtorə /i radjaˈtorə | | |
| All | o ˈritə / e ˈddetə | AGI | o ˈritə / i ˈritə | | |
| All | a ˈkuffjə / e ˈkkuffjə | B | a ˈskuffjə / e ˈkkuffjə | AC | a ˈʃkuffjə/ e ˈʃkkuffjə |
| DFH | a ˈstampantə / e ˈstampantə | All | a ˈstambantə / e ˈstambantə | | |
| EFGHIJ | o karikaˈtorə /i karikaˈturə | ABCD | o karikaˈtorə/i karikaˈtorə | | |
| All | o piˈstonə / i piˈstunə | | | | |
| F | o pəˈrukkjə / i pəˈrokkjə | ABCEJ | o pəˈrokkjə / i pəˈrukkjə | DGHI | o pəˈrukkjə/i pəˈrukkjə |
| All | a ˈtattsə / e ˈttattsə | | | | |
| All | a krjaˈturə / e kkrjaˈturə | AC | a pəttʃəˈrellə/e ppəttʃəˈrellə | | |
| CEFGJ | o moˈtorə / i moˈturə | ABDI | o moˈtorə / i muˈturə | | |
| ABCDEF | o karburaˈtorə / i karburaˈtorə | GHIJ | o karburaˈtorə / i karburaˈturə | | |
| All | a sospenˈtsjonə/e ssospenˈtsjonə | | | | |
| All | o ssaˈponə / i saˈpunə | | | | |
| All | o məˈlonə / i məˈlunə | | | | |
| All | o piˈtonə / i piˈtunə | A | o ˈsɛrpə / i ˈsjerpə | | |
| All | o kaˈsenə / i kaˈsenə | GI | o kaˈsenə / e kaˈsinə | | |
| All | o tiˈnɛpə / i tiˈnɛpə | EJ | o tiˈnɛpə / i tiˈnjepə | G | o tiˈnɛpə / i tiˈnipə |
| All | o ʃiˈnonə / i ʃiˈnunə | | | | |
| All | o ˈʃɔtə / i ˈʃwotə | J | o ˈʃɔtə / i ˈʃɔtə | E | oˈʃɔtə / i ˈʃutə |