

ABRUZZESE METAPHONY AND THE |A| EATER

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0. INTRODUCTION¹

As the reader of this volume may know, many Romance dialects², in Italy and elsewhere, show a phonological process called metaphony, whereby stressed stem vowels change their quality in certain morphological contexts. In the Abruzzese examples in (1), the masculine singular form of a noun, featuring a low stressed stem vowel, alternates with a plural form in which the stressed stem vowel is high:

(1)	SINGULAR	PLURAL	[Abruzzese]
	<i>waglionə</i>	<i>wagliunə</i>	‘young person’
	<i>mbrel:ə</i>	<i>mbri:l:ə</i>	‘umbrella’
	<i>mat:ə</i>	<i>mit:ə</i>	‘madman’

According to a definition by Savoia & Maiden (1997:15), “metaphony is a type of quality agreement of stressed mid or low vowels with unstressed high vowels ([i] or [u]) in a following syllable”. Its effects are present in most dialects, at least as a remnant of an earlier change, where the inflectional endings [-i] and [-u] created extensive patterns of paradigmatic alternation in stressed vowels.

In dialects in which final unstressed vowels have subsequently merged or fallen, like in the case of Abruzzese in (1), metaphonic alternation may constitute the sole means of differentiating morpho-syntactic properties within paradigms: the differences are no longer seen from the suffixes. For the same reason, metaphony can be argued to have become phonologically opaque in such dialects: the sources of spreading vowel height (the inflectional endings) are no longer high themselves, as they have become schwa.

Furthermore, it does not always seem easy to describe metaphonic patterns in a natural way when we use restrictive models of segmental organization such as Element Theory (Backley 2011). In the examples in (1), the alternation is one of heightening of the stressed vowel in metaphonic context. This is problematic in Element Theory, which does not have an equivalent of the feature [high].

Witness other papers in this volume, the amount of phonological and syntactic microvariation in (southern) Italian dialects is quite striking. In this study, we will be mainly concerned with Eastern Abruzzese metaphony, and in particular with an intriguing pattern of metaphony targeting masculine nouns in the variety spoken in Arielli, in the province of Chieti³. This dialect displays metaphony in a particularly clear and surprising way; and by doing so, it shows how we can indeed describe this phenomenon without making too many concessions to theoretical restrictiveness. In what follows, we will give an overview of the data in Section 1; then we will comment briefly on some of previous influential approaches to metaphony in Section 2. This section also contains a

¹ Thanks are due to Kathrin Linke, Diana Passino, Markus Pöchtrager, Jochen Trommer and Eva Zimmermann for comments on earlier versions of this paper.

² In this paper, we use the term “Italian dialect”, following the Italian tradition, to refer to linguistic varieties spoken in Italy directly deriving from Latin, which are independent from Italian (Rohlf 1966-1969, Grassi, Sobrero & Telmon 1997, Loporcaro 2009, *et al*).

³ The data were collected through recording spontaneous speech as well as through elicitation. Metaphony being so pervasive and productive, no variation has been found within this variety, and we therefore do not report it. Unless otherwise stated, all the data are from Ariellese.

short introduction to the relevant aspects of Element Theory. In Section 3, we will outline our analysis of Abruzzese metaphony. Section 4 analyses the interaction with *a* epenthesis, and section 5 gives some conclusions.

1. THE DATA

1.1. ARIELLESE METAPHONY

In Ariellese, metaphony targets mid and low stressed root vowels in nouns, adjectives and verbs. The following examples illustrate the most commonly found metaphonic alternations for this particular dialect:

(2) MASCULINE NOUNS

a> i	<i>lu canə</i>	<i>li chinə</i>	‘the dog/s’ ⁴
e> i	<i>lu velə</i>	<i>li vilə</i>	‘the veil/s’
ε> i	<i>lu martellə</i>	<i>li martillə</i>	‘the hammer/s’
ɔ> u	<i>lu/la nəpɔtə</i>	<i>li nəputə</i>	‘the nephew-niece/s’
o> u	<i>lu waʎʎonə</i>	<i>li waʎʎunə</i>	‘the young boy/girl/s’

(3) MASCULINE ADJECTIVES

a> i	<i>mattə</i>	<i>mittə</i>	‘crazy SG-PL’
e> i	<i>nerə</i>	<i>nirə</i>	‘black SG-PL’
ε> i	<i>bellə</i>	<i>billə</i>	‘beautiful SG-PL’
ɔ> u	<i>turdəllonə</i>	<i>turdəllunə</i>	‘dumb SG-PL’
o> u	<i>novə</i>	<i>nuvə</i>	‘new SG-PL’

(4) VERBS (1ST VS 2ND PERSON SING. ALTERNATION)

a> i	<i>magnə</i>	<i>mignə</i>	‘I-eat/you eat’
e> i	<i>vedə</i>	<i>vidə</i>	‘I see/you see’
ε> i	<i>leggə</i>	<i>liggə</i>	‘I read/you read’
ɔ> u	<i>dərmə</i>	<i>durmə</i>	‘I sleep/you sleep’
o> u	<i>sonə</i>	<i>sunə</i>	‘I play/you play’

FEMININE NOUNS never show any metaphony:

(5) a	<i>la mammə</i>	<i>li mammə</i>	‘the mother/s’
e	<i>la cestə</i>	<i>li cestə</i>	‘the basket/s’
ε	<i>la cəndə</i>	<i>li cəndə</i>	‘the belt/s’
ɔ	<i>la ɣənnə</i>	<i>li ɣənnə</i>	‘the skirt/s’
o	<i>la moʎə</i>	<i>li moʎə</i>	‘the wife/wives’

A result of metaphony is that some nouns that can have either masculine or feminine gender show the alternation only in the masculine form; this means that those nouns show an overt gender distinction only in the plural. The word *muturettə* can, for example, denote a small tractor, when masculine, or a small motorbike, when feminine; the article will show which gender is used in the singular, but in the plural the presence or absence of metaphony will denote the distinction:

⁴ We use the IPA only when there is no corresponding sound in Italian and when the nature of the sound is crucial for understanding the argument. Otherwise, we present words in an orthography which is close to that of Italian, as customary in the transcription of Abruzzese.

- (6) a. *nu/lu muturettə* *ddu/li muturittə*
 ‘a/the small motor’ ‘two/the small motors’
- b. *na/la muturette* *ddu/li muturette*
 ‘a/the small motorbike’ ‘two/the small motorbikes’

On the other hand, feminine adjectives always display the relevant alternation, and therefore coincide with masculine adjectives in the plural:

- (7)
- | | | |
|---------------------------------|-----------------------|----------------------|
| <i>la moja</i> ⁵ ... | <i>li moja</i> ... | ‘the wife/wives...’ |
| a > i ... <i>mattə</i> | ... <i>mittə</i> | ‘crazy F.SG /PL’ |
| e > i ... <i>nerə</i> | ... <i>nirə</i> | ‘black F.SG /PL’ |
| ε > i ... <i>bellə</i> | ... <i>billə</i> | ‘beautiful F.SG /PL’ |
| ɔ > u ... <i>turdəllənə</i> | ... <i>turdəllunə</i> | ‘dumb F.SG /PL’ |
| o > u ... <i>novə</i> | ... <i>nuvə</i> | ‘new F.SG /PL’ |

At first glance, metaphony looks undeniably morphological in examples such as this: no phonological prediction seems possible, apart from the fact that forms which have a high vowel in the singular obviously do not alternate. Otherwise the relevant factors always seem to be morphological.

However, we wish to maintain that this view is incorrect. The manipulation of vowels in this case is completely systematic, and we believe that phonology is the only grammatical module that can manipulate vowels in this way. For this reason, phonology actually does play an important role. Specifically, we hope to show that metaphony is a phonological process that takes place every time the relevant conditions are met.

It is of course morphology which sets up those conditions, in the sense that certain affixes trigger metaphony and others do not; but even those conditions are purely phonological. The relation between morphology and phonology is therefore not different in this respect than that between, for instance, the past tense suffix and voicing in English. It is true that the suffix has different shapes for different environments (it is voiced in *wanted* and voiceless in *leaped*), but this does not necessarily mean that morphology determines those different shapes: the classical analysis is that morphology just provides one exponence for his suffix, which is then adapted by phonology to the relevant context.

1.2. FULL PRODUCTIVITY AND INTERACTION WITH OTHER PHONOLOGICAL PROCESSES

Metaphony is fully productive, also in regions like Abruzzo where the endings have been reduced to schwa. In present-day Abruzzese, it has been generalized to plural formation of words that historically did not undergo metaphony. For instance, it has been extended in adjectives to the feminine plural adjectival paradigm, even though the feminine plural ending never had a high vowel to begin with:

- | | | |
|------------------------|----------------------|---------------|
| (8) MASCULINE (SG/PL) | FEMININE (SG/PL) | |
| * <i>neru- *neri</i> | * <i>nera- *nere</i> | Protoromance |
| > * <i>neru- *niri</i> | * <i>nera- *nere</i> | |
| > <i>nerə-nirə</i> | <i>nerə-nerə</i> | Old Abruzzese |
| > <i>nerə - nirə</i> | <i>nerə- nirə</i> | Ariellese |
| ‘black’ | | |

⁵ Observe that the form in isolation is *mojə*, as in (5). The *-a* in *moja* indicates that this noun is part of a phrase together with the adjective. We will return to this *-a* in Section 1.3. and following. Observe furthermore that adjectives in Abruzzese, like in the rest of Romance, are postnominal.

Between Protoromance and Old Abruzzese, the features of which are still preserved in some varieties (Giammarco 1973, Avolio 2014) metaphony applied to the masculine plural forms in adjectives, since they were the only ones featuring a high final vowel. After this, presumably the final vowels got reduced, as we have seen. The result of this is that there was no longer a difference between singular and plural in the feminine part of the paradigm. In the current form of the dialect, this difference has been reestablished, by extending the alternation of the masculine paradigm:

(8) *nerə-nirə* *nerə-nirə* [Giammarco 1973:40-45]

In the adjectival paradigm, metaphony thus signals plurality. This is different for the nominal paradigm, where metaphony still applies only to masculine plurals and there is typically no difference between singular and plural forms of feminine nouns:

(9) *surellə-surellə* ('sister/s' F.SG –F.PL)
 but not
 **surillə* [see *fratellə-fratillə* ('brother' M.SG –M.PL)]

Words like *fax* or *telefənə* ('telephone'), which have obviously entered the lexicon quite recently, and in any case long after the neutralization of final vowels to schwa, undergo metaphony, as (10) shows:

(10) a. *lu faxə - li fixə*
 b. *lu telefənə - li tilifənə*

Example (10) also shows that vowel “raising” sometimes spreads to other, non-stressed, vowels in the word: the [e] in *both* initial syllables of *telefənə* raise to [i] in the plural. This is visible also in the alternations exemplified in (11). We have underlined the tonic vowel for expository convenience:

(11) *təlavisjonə/tilivisjunə*⁶ ‘television set/ television sets’ F.SG/PL
telefənə/tilififənə ‘phone/phones’ M.SG/PL’
olandesə/ulandisə ‘Dutch’ M.F.SG/PL
svədesə /svidisə ‘Swedish’ M.F.SG/PL

In these cases, it is not just the stressed [o] or [ε] which alternates. Also the (mid) vowels preceding that vowel do. While metaphony is fully productive, the vowel harmony illustrated in (11) only concerns a limited number of words, which seem to share the characteristics of being polysyllabic and quite recent. It furthermore poses the interesting puzzle as to why the low vowel [a] does not participate in the alternation. We will leave the particulars of this extension of the original metaphony pattern to future research; in this paper we only concentrate on the alternations of the tonic vowel itself.

1.3. A-INSERTION

Before going into our analysis of metaphony in phonological terms, we wish to introduce another phonological process which takes place more or less in the same geographic area and in very similar morphological contexts. This phenomenon, which we will dub “a-insertion” has not been connected to metaphony before, but in our view it offers a key insight into metaphonic processes.

⁶ Observe that *təlavisjənə* is a feminine noun which exceptionally undergoes metaphony.

In Abruzzese, all nouns typically end in schwa, as we have seen. In some phrasal contexts, however, for instance preceding a post-nominal adjective, an (epenthetic) [a] appears word-finally, as in example (12):

- (12) a. *la casə*
 the-F.SG house-F.SG
 ‘the house’
- b. *la casa roscə*
 the-F.SG house-F.SG red-F.SG
 ‘the red house’

This [a] is not always etymological, as it is in this case: it can also appear on nouns that never featured an [a], as example (13) shows:

- (13) a. *lu mutorə*
 the-M.SG tractor-M.SG
 ‘the tractor’
- b. *li mutura nuvə*
 the-M.PL tractors-M.PL new-M.PL
 ‘the new tractors’

We have seen that [a] can appear on feminine nouns, where it is most likely an etymological residue (see Passino this volume for a detailed description of the contexts in which [a] can appear). *A* can furthermore also appear between verb and *wh*- words in questions or exclamatives, possibly as a marker of a phase head (see D’Alessandro & Scheer 2013). Finally, [a] can appear on masculine plural nouns, when in phrasal contexts. The nouns on which such a non-etymological [a] such as the one in (13) can appear given the right phrasal context, are the same that display metaphony. Crucially, [a] never surfaces on masculine singular nouns, not even when followed by a postnominal adjective, as (14) illustrates.

- (14) a. *lu canə*
 the-M.SG dog-M.SG
 ‘the dog’
- b. *lu canə cioppə*
 the-M.SG dog-M.SG lame-SG
 ‘the lame dog’
- c. **lu cana cioppe*
 the-M.SG dog-M.SG lame-SG
- d. *li china ciuppə*
 the-M.PL dogs-M.PL lame-PL
 ‘the lame dogs’

We argue that the fact that *a* surfaces on masculine plural, but not on masculine singular, nouns is not accidental, but it is the result of metaphony, which consists, we maintain, in moving an *A* element from the tonic vowel to word-final position.

2. METAPHONY AS REGRESSIVE ASSIMILATION: AN ANALYSIS AND ITS PROBLEMS

The standard formal analysis of metaphony in Italian dialects assumes some form of (regressive) assimilation of a phonological feature [HIGH] (and in some cases [FRONT]; see Savoia and Maiden

1997:18). The autosegmental analysis of assimilation, in turn, is one of spreading; in our case spreading a feature from the suffix to the stem vowel carrying the main stress.

This kind of analysis probably fits the diachrony of the process quite well. Historically, metaphony applied to masculine nominal paradigms in which the singular ending was a mid vowel -e or -o, and the plural ending was -i, and in which presumably the height feature of the plural suffix spread to the stressed vowel of the stem [*Atlante Italo-Svizzero* AIS, Rohlf's 1966, Giammarco 1979, Maiden 1987, 1991, Savoia and Maiden 1997):

(15)	SINGULAR	PLURAL	
	PEDE(M)	PEDES	(Vulgar) Latin
	<i>pɛde</i>	<i>pɛdi</i> (s>i)	Eastern Romance
	<i>pɛde</i>	<i>pidi</i> (assimilation)	Old Abruzzese
	<i>pedə</i>	<i>pidə</i> (neutralization of endings)	Ariellese

Many modern synchronic accounts mimic at least the last two steps of this diachronic process, as both the assimilation and the neutralization of endings may be still productive. However, the opacity of the process causes complications for surface-oriented theories such as Optimality Theory or Government Phonology which do not allow for phonological processes to be extrinsically ordered.

Torres-Tamarit and Linke (this volume) take one route by giving a synchronic phonological analysis within OT which is not opaque. Kaye and Pöchtrager (2011) working within the Government Phonology tradition, follow another track, and argue that Germanic Umlaut and Romance metaphony are not phonological, but should rather be generated by another module of grammar, which they term a “paradigm generator”. This generator produces lexical items which are related in form (and possibly meaning). Kaye and Pöchtrager point out that, apart from the opacity, a (Government) Phonological analysis, wedded as it is to an analysis in terms of Element Theory, suffers from another problem: the process involved cannot be described easily in terms of assimilation, as there is no element corresponding to [HIGH] within that theory (see also Ouddeken 2013).

An Element-Theoretic analysis of vowels (Backley 2011) assumes that there are three monovalent primitives, appropriately called elements, and represented as A, I and U. These elements can be pronounced on their own, when they will sound as /a/, /i/ and /u/, but they can also be combined. A combination of A and I will sound as /e/, and a combination of A and U as /o/. We thus have:

(16)	[a] = A
	[i] = I
	[u] = U
	[e],[ɛ] = A.I
	[o],[ɔ] = A.U
	[ə] = ∅ [no elements]

Further distinctions (such as that between [e] and [ɛ] or [o] and [ɔ]) can be derived by refinements of the representational apparatus, but for our purposes this simple version of Element Theory will suffice, as [e]/[ɛ] and [o]/[ɔ] behave the same with respect to metaphony. The schwa vowel can be seen as devoid of content. It should be clear that e.g. the metaphonic change from /e/ to /i/ cannot be the result of spreading; it has to be the result of *deletion* of something, viz. an A element.

(17)	a. [a] → [i] = A → I
	b. [e],[ɛ] → [i] = A.I → I
	c. [o],[ɔ] → [u] = A.U → U

Such an analysis has indeed been proposed (most famously, by Maiden 1991), but Kaye and Pöchtrager (2011) reject this solution, as randomly deleting underlying elements according to them does not belong to the universal repertoire of phonological processes. The upshot of this is that already the change from Protoromance to Old Abruzzese in (15) above cannot be described as a regular phonological process within Element Theory, and therefore should be considered suspect, at least from the point of view of theories of synchronic phonology (we have to say that diachronic change does not necessarily obey the same constraints as synchronic processes).

We follow Kaye and Pöchtrager (2011) in assuming that these two parts of the analysis – the fact that the process is opaque, and the fact that it seems to involve a strange kind of element loss – should be connected to each other. We do not follow them in concluding that the process can therefore not be phonological. The main reason is that we find the alternative they suggest – assuming that there is an independent non-phonological module which can still manipulate phonological elements and delete A's in certain contexts – even less attractive, given that such an alternative model has an unknown theoretical power: what would be the restrictions on such a module? And why would the human language faculty provide two modules each with independent power to work on phonological representations?

We thus stick to the assumption that if a process involves phonological primitives such as elements (or features), it must be phonological. Furthermore, we assume that since metaphony in Abruzzese is still productive for some syntactic categories, it has to be understood in grammatical terms. Morpho-syntax puts together certain morphemes and metaphony has to be a regular response to a certain arrangement of such morphemes. The fact that this relation is rather problematic for the theory as it stands is of course unfortunate, but we think the problem can be repaired without destroying the glory of a restrictive view on what phonological computation can and cannot do. Our goal is to be maximally conservative and at the same time create some space for metaphony to fit in.

3. METAPHONY AS TRUNCATION

Which tools do we have at our disposal for understanding the process at hand? We have identified two problems with analyzing metaphony in terms of elements: the process is about taking away an A element, *and* the process seems opaque in derivational terms.

We will propose that these are two sides of the same coin; but in order to understand why, it is useful to see how taking away an A element, as a phonological response to a certain morphosyntactic structure, is a problem to begin with, since it is so only under a specific, restrictive view of the interface between morphosyntax and phonology. This is a view which subscribes to an Items-and-Arrangement model of morphology (Hockett 1954) and its interface to phonology, in particular a morpheme-based view of morphology.

Under an Items-and-Arrangement view, each feature of the morphosyntactic representation corresponds to some phonological 'material' (features, feature bundles, segments, syllables, or larger units). Lexical items have an exponent which is a phonological representation. Deleting material is not an option in such a view, since it would correspond to giving a 'negative' exponent to morphosyntactic material. This view contrasts with Items-and-Process models, in which phonological words are built by applying processes to stems; under such a model 'delete an A' could be a possible way of deriving a word. The debate between Items-and-Arrangement and Items-and-Process is a long one, and runs across many models of formal linguistics (both could be implemented within Optimality Theory, for instance). In many cases, the two views might be notational variants, but we prefer Items-and-Arrangement because it seems more restrictive, and furthermore seems supported by many data.

A consequence of this is that the morphology-phonology interface should always be additive: if we merge two morphemes with each other, the resulting phonological representation should be at

least as phonologically complex as the two morphemes on their own. That is to say: if we have reason to believe that a plural form of an adjective has a feature [PLURAL] and the singular has no such feature (there is no feature [SINGULAR] in the language), the plural of some adjective should always have at least as much phonological complexity as its singular counterpart.

A more special result of this is that truncation should not be allowed in a morpheme-based Items-and-Arrangement model of morphology. This is at first blush problematic, as we do seem to find cases of truncation in natural languages. The perfective in Tohono O’odham is a rather well-known case in point. This perfective seems to be based on the imperfective; yet it is phonologically *less* complex.

(18)	IMPERFECTIVE	PERFECTIVE	[Tohono O’odham]
	bisck	bisc	‘sneeze’
	ñeok	ñeo	‘speak’
	ma:k	ma:	‘give’
	dagsp	dags	‘press with hand’

(Fitzgerald 1997, Horwood 2001, cited in Trommer & Zimmermann 2014:467)

The final *k* or *p* in the imperfective in each case really belongs to the stem (it is not part of some ‘imperfective’ morpheme) and it apparently gets deleted in order to form the perfective. The problem then is that we *add* a morpheme in order to derive the perfective, but in phonology this results in *deleting* a vowel.⁷

Trommer and Zimmermann (2014) discuss these data and show how they can be made compatible with a conservative Items-and-Arrangement view of the interface. In their proposal, the perfective morpheme does correspond to phonological material, viz. a mora. This mora however for some reason cannot get incorporated into the prosodic structure of the stem, and therefore stays unpronounced by the phonetics, which only considers material that is fully integrated into the phonological tree, following the basic principles of (Coloured) Containment Theory (Prince and Smolensky 2004, Van Oostendorp 2006, 2007-to appear).

Trommer and Zimmermann (2014) furthermore adhere to the principles of Autosegmental Phonology, such as the Well-Formedness Condition of Goldsmith (1976, WFC), which claims that every prosodic position should correspond to precisely one segment, not more, not less. They relativize these constraints, as their analysis is captured in terms of Optimality Theory, but we choose to remain neutral on that particular aspect of the analysis in this paper.

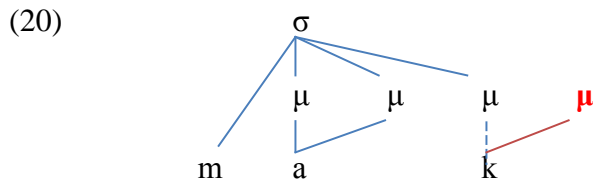
Taken together, the principles of Coloured Containment and the WFC give us the following principles, which will be essential for our analysis of Abruzzese metaphony (the analysis we present here is slightly simplified over that presented by Trommer and Zimmermann 2014, but does not alter its essence):

- (19) a. Every mora should be linked to something (either higher-order prosody or segmental material)
- b. A segment cannot be linked to more than one mora.
- c. A syllable cannot host more than three mora’s.

These principles together give the result that the purely additive morphology of Tohono O’odham sounds like truncation in the phonetic signal. The following picture illustrates why this is the case.

⁷ A further complication arises in words in which the final consonant is preceded by a high vowel which in turn is preceded by a coronal consonant. In those cases, also the high vowel is deleted. We follow Fitzgerald (1997), Harwood (2001) and Trommer and Zimmermann (2014) in treating this as a separate phenomenon.

Blue elements denote the stem ‘to give’; the red mora in the end is the phonological exponent of the perfective:

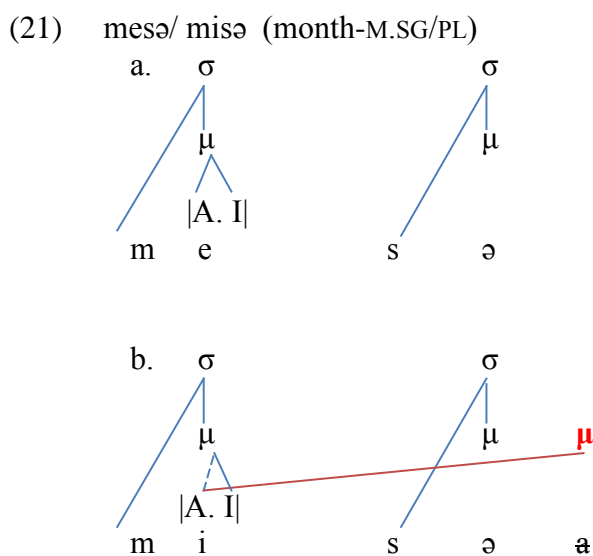


The perfective is only a mora. According to (19a) it needs to be linked to other structure in some way; but according to (19b) it cannot get incorporated into the syllable of the stem, because that is already trimoraic. So the only thing it can do in order to satisfy all requirements, is attract the *k* segment at the end of the stem. This segment cannot be linked to two moras, however, because of (19c), and as a result it now loses its link to the third mora of the syllable – that is why we have drawn a dashed line there.

The end result is that the *k* is only linked to the ‘loose’ mora. But since this mora is not linked to any higher-order prosodic structure it will not be interpreted, and neither will the segment hanging under it, which by transitivity is also not linked to the phonological word (or whatever higher nodes we may assume here). So although the phonological output structure in (20) is rather complicated, and indeed more complicated than the imperfective from which it is derived, it contains uninterpretable material at the interface to phonetics, which therefore sounds as truncation.

We believe this to be an elegant and interesting analysis of truncation in general, and we wish to observe that the Abruzzese data can also be seen as a form of truncation, albeit not of a whole segment, but just of one element, the |A| element.⁸ In this case, truncation of that element corresponds to addition of a feature [plural] or of the two features [masculine, plural], as we have seen. We propose that this feature (bundle) corresponds to an empty mora in Abruzzese. The difference, however, is that this bundle does not need (or want) to be filled by a full consonant, but only by the element |A|. The reason for this may be that |A| counts as the most sonorous of elements (Hermans and Van Oostendorp 2005, Pöchtrager 2006, Backley 2011).

We thus get representations such as the following:



⁸ In the terminology of Arndt-Lappe and Alber (2012), metaphony as we analyse it here would probably be termed ‘subtraction’, but as we believe that truncation and subtraction are essentially the same thing, we have decided not to make that terminological distinction in the main text.

Again, the mora needs to be linked to some segmental material (schwa-syllables cannot be heavy in Abruzzese, so it cannot be linked to a syllable which already has a mora; we will return to this below). It therefore looks for an |A| element, and finds it in the stressed syllable. Parallel to Tohono O’odham, the |A| element is not allowed to be linked to two moras, and therefore loses its connection to its original host. The end result is that it is now linked to the uninterpretable mora only, and therefore will not be pronounced. The Abruzzese word in metaphony context thus ‘loses’ its lowness in the same way that Tohono O’odham perfectives lose their final consonant: phonologically, it stays where it is, but it gets in a position which will be ignored by the phonetics. The mora thus functions as an ‘|A| eater’, grabbing an underlying |A| in its environment and gnawing it away.

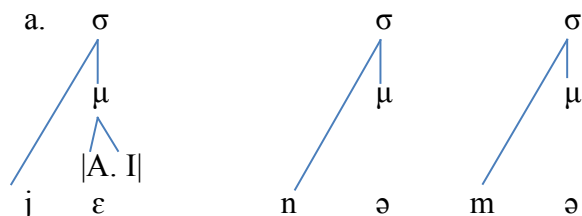
We do obviously have to take into account that there is a difference between Tohono O’odham and Abruzzese: in the former language, the mora ‘eats’ a whole consonant, but in the latter only one specific element is eaten, |A|. We suppose that this is the result of the interplay of two parameters or rankable constraints. First, some kind of (language-specific) markedness will decide what kind of material can fill the mora: in Tohono, this is consonantal, in Abruzzese it is vocalic. And secondly, in Tohono, apparently some kind of integrity constraint on segments is operative, so that segments move as a whole, whereas Abruzzese moras are satisfied with eating only the most sonorous element. Notice that both of these kinds of parameters would be independently necessary in the analysis of any spreading process: in some languages consonants spread (geminate) whereas in other languages vowels lengthen; and in some languages segments spread as a whole, while in other languages this only happens to individual elements.

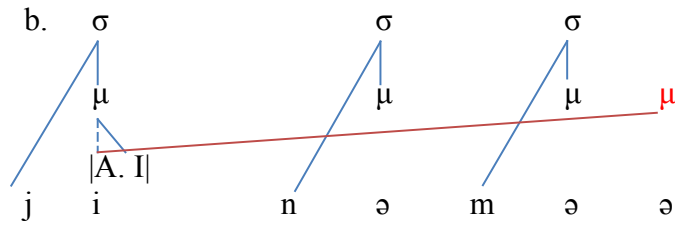
Note that in this analysis also the alleged ‘opacity’ disappears. The synchronic analysis does not directly mirror the diachronic order of affairs. In particular, there is no reason to assume a synchronic process of vowel reduction in Abruzzese, let alone an extrinsic ordering of this process with respect to metaphony. There is some kind of ordering of the attraction of |A| to the empty mora and the subsequent ‘deletion’ of that mora, but that ordering is intrinsically given by the way in which the grammar has been set up for independent reasons, since the former process is phonological and the latter a result of phonetic implementation which necessarily follows.

The reason why metaphony targets only the stressed vowel is that all vowels following that vowel are reduced in Abruzzese, and therefore will not contain an |A| element. Even if two vowels are following that vowel, the source of |A| will still be the stressed vowel:

- (22) a. 'mɔ.nə.kə mu.nə.tʃə (monk-M.SG/PL)
 b. 'mɔ.b:ə.lə mu.b:ə.lə (furniture-M.SG/PL)
 c. 'jɛ.nə.mə ji.nə.mə (son-in-law.my- M.SG/PL)

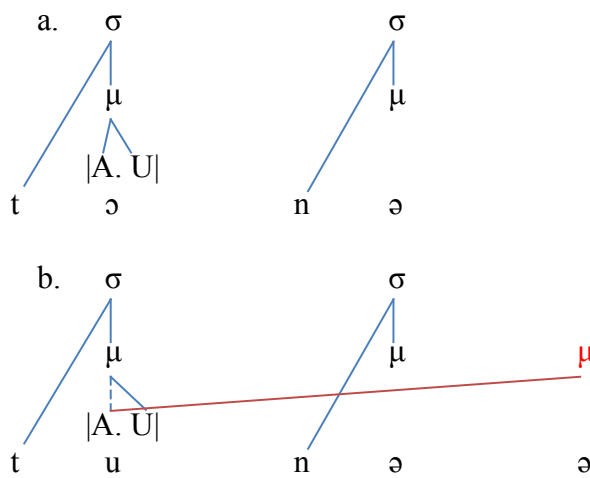
- (23) jenəmə, jinəmə (son-in-law.my- M.SG/PL)



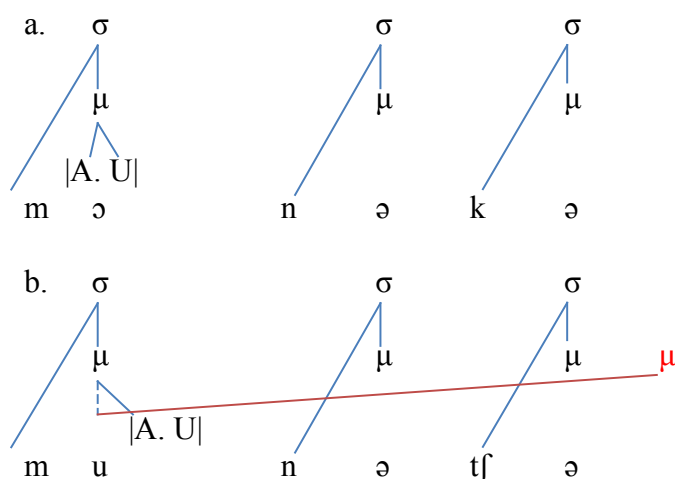


In the figures we have given so far, the stressed vowel was always mid front, but a parallel analysis applies to underlyingly back stressed vowels. Again these vowels just lose their |A| to the |A| eater, and the result will be a high back rounded [u], regardless of how many reduced vowels follow, as the following examples illustrate:

(24) *tonə/ tunə* (thunder-M.SG/PL)

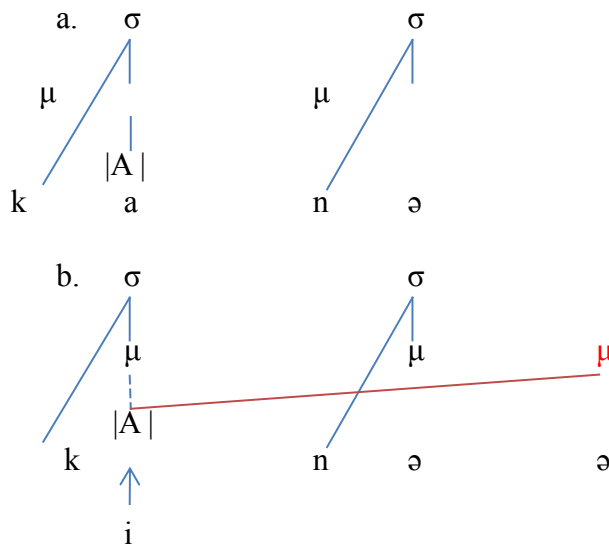


(25) *monəkə/ munətʃə* (monk-M.SG/PL)



A more problematic case are forms such as *cane* 'dog' which have an [a] vowel in the singular, i.e. which have only an A element. The result of the empty mora attracting this A element should be that the stressed vowel becomes [ə]: the plural 'dogs' should be *cənə*, but it is *chinə* instead: apparently an |I| has been inserted:

(26) canə, chinə (dog-M.SG/PL)



An important question to ask now obviously is where this |I| comes from. We can think of two possible answers. The first is that schwa is not a possible stressed vowel in Ariellese (or in many other languages of the world). The |I| element would then be a possible repair for this situation, and function as a kind of epenthetic element.

Passino (this volume) objects to such an analysis – albeit for a different dialect –, observing that it seems more plausible that [a] is the epenthetic vowel in Abruzzese given the kinds of facts we discuss below. Our analysis of those data does not involve epenthesis, so that we are not sure that the objection applies to it, but more generally one can wonder what other evidence there would be for epenthesis of |I| elements in Abruzzese; we are not aware of any.

An alternative, then, would be that the plural affix actually contains both a mora and a floating |I| element. The |I| element cannot be linked to the empty mora as they are part of the same morpheme; but it can be linked to the stressed vowel. Yet, if this vowel is underlyingly [e], it already features an |I|, so linking another one has no effect. If the vowel is [o], linking |I| to it would lead to a combination of |I| and |U|, which is ruled out in Abruzzese in general, as the language does not have front rounded vowels. So the only place where the |I| element can be seen to surface is when the stressed vowel is an [a]. This analysis might be seen as rather arbitrary when taken for Abruzzese in its own right, but it has as an advantage that it links this particular type of metaphony to that in other languages, in which this is sometimes expressed as fronting, i.e. as |I| linking more generally.

4. INTERACTION WITH [A] ‘EPENTHESIS’

We now return to the interaction of metaphony with another vocalic alternation: that of the epenthesis of [a], illustrated in (14), repeated here for convenience.

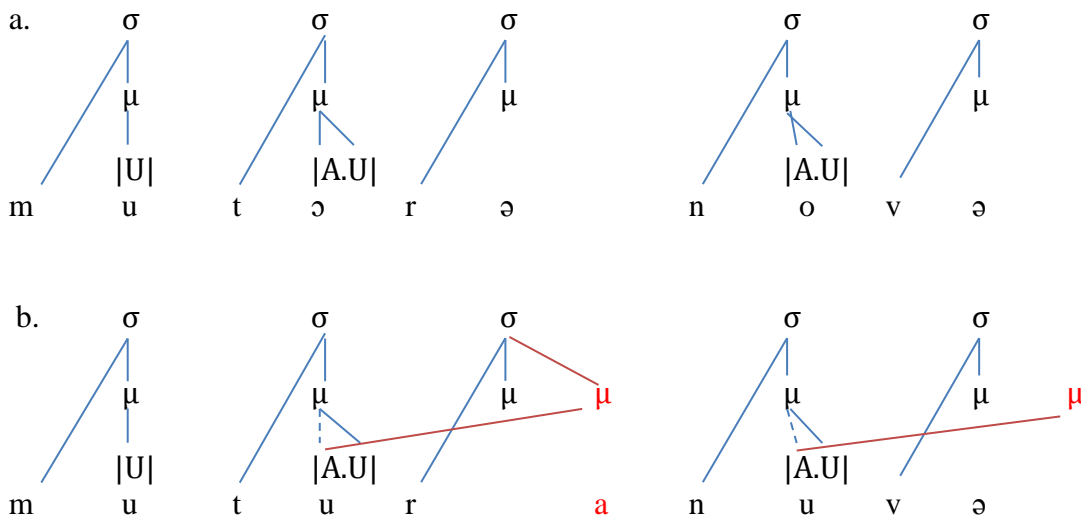
- (27) a. *lu* *canə*
 the-M.SG dog-M.SG
 ‘the dog’
 b. *lu* *canə* *cioppə*
 the-M.SG dog-M.SG lame-SG
 ‘the lame dog’
 c. **lu cana cioppe*

	the-M.SG	dog-M.SG	lame-SG
d.	<i>li</i>	<i>china</i>	<i>ciuppə</i>
	the-M.PL	dogs-M.PL	lame-PL
	‘the lame dogs’		

The [a] in (27) is not etymological in any way, and there is no reason to suppose it is synchronically underlying in the masculine plural suffix. Since (27d) represents a masculine form, this plural form should etymologically have been a high front [i]; this is the historical reason why metaphony took place here.

We thus have a somewhat paradoxical pattern here: the ending which is supposed to have synchronically triggered height metaphony, itself surfaces as low. But notice that the pattern starts making at least some sense under the view presented above:

(28) *lu mutorə novə, li mutura nuvə* ‘the new tractor’ (sg./pl.)



Notice that in cases where the [a] surfaces, there is no preceding [ə]. In Element Theory [ə] is the realisation of an empty vowel without elements. We submit that this interpretation can be context-sensitive, and will only happen in the absence of an adjacent full vowel.

We are thus proposing that there is no such thing as [a] insertion, but that an [a] that is generated by independent mechanisms is phonetically realized only when specific phonotactic conditions are met. Specifically, [a] is realized in this extrametrical position as this is an intra-phrasal position, i.e. a strong position. [a] in Abruzzese is never reduced in unstressed position inside a word, but it is at the end of a word, as (29) and (30) illustrate. The intraphrasal position is equivalent to an intraword position, hence [a] is fully realized.

(29) *cavallə/ capabbəllə/ wəgliə* (‘horse/ downhill/ boy’)

(30) *mammə, casə* (‘mother/ house’)

Recall that etymological [a] is also not reduced in intraphrasal position:

(31) *la casə/ la casa novə* (‘the house/the house new’)

5. CONCLUSIONS

Metaphony in Ariellese masculine nouns is neither only morphological nor only lexical: it is instead the result of a synchronic phonological process, consisting in adding a mora to the word to express

the plural morpheme. This mora needs to be linked to a segment. The stressed vowel, being the most prominent unit, is the obvious candidate. More specifically, the chosen segment is the most sonorant element in the nucleus, i.e. the |A| element. In order to keep a correct syllabic structure, |A| will need to be detached from its original mora. The result will be both the realization of the remaining element in the stressed syllable, bearing a metaphonic “effect” and, when in phrasal configuration, the realization of the |A| element in the extrametrical position.

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