# THE NATURAL PHONOLOGICAL PROCESS
## V
## [+HIGH] ⟶ [+TENSE]
# AND THE VOWEL SYSTEMS OF SOME SOUTHERN ITALIAN DIALECTS*

MICHELE LOPORCARO

## ABSTRACT

In the overwhelming majority of the languages of the world there exist only tense and no lax high vowels. Natural Phonology accounts for this observational data by postulating a process of tensing which has in its structural description a condition [!higher]. This process remains active under the form of a prelexical paradigmatic constraint in all languages lacking [−tense] high vowels, and, conversely, must be suppressed during language acquisition by any child in whose mother tongue vocalic segments such as /I U/ and the like do occur.

Italian, as is well known, belongs to the former, and most widespread, class. However, this paper argues that, while this holds true for Standard Italian (= SI) and for the dialects spoken in northern and central Italy, (at least some) southern Italian dialects actually have to be classed within the latter group.

This postulated difference between SI and southern Italian dialects, in terms of retention vs. suppression of the tensing process, is confirmed by some pieces of evidence resulting from a comparison of both the paradigmatic and syntagmatic structures of the two varieties. In SI the operation of the process under discussion disallows: (a) [±tense] opposition between high vowels, and (b) the occurrence of sequences of glide + homorganic high vowel. Our starting assumption about southern Italian dialects predicts that they behave in just the opposite way: namely, both (a) and (b) should be allowed. And this is in fact what is observed, when these dialects are carefully examined.

1. In the vast majority of vowel systems found among the languages of the world, a vocalic segment which is [+high] also bears the phonological specification [+tense]. Accordingly, 243 of the 317 languages constituting the UCLA Phonological Segment

---

Inventory Database sample (cf. Maddieson 1984) have only tense and no lax high vowels. As Donegan (1978: 48ff), among others, has pointed out, the co-occurrence of these two features is favoured on general phonetic grounds. This is accounted for, in the theoretical framework of Natural Phonology, by postulating a natural phonological process

(1)    V
       [+high] $\longrightarrow$ [+tense]

the application of which is responsible for the surfacing of high vowels as /i/ /u/ (and not as */ɪ/ */ʊ/) in e.g. Spanish, Swahili, Turkish, Malayalam, etc.[1] (1) is a prelexical and paradigmatic process, *viz.* it constrains the phonemic inventory of the languages in which it operates, and is not sensitive to any element of the context in which its input segments occur. It is a *Verdeutlichungsprozeß* (i.e. a clarification process, in Dressler's 1985 terminology), the phonological function of which is to enhance the perceptibility of the segments it acts on, bringing them to a peripheral (and maximally contrastive) position in phonetic space.

In language acquisition, a natural process may be restricted in its application and eventually suppressed if its inputs happen to be phonological segments (or segment sequences) allowed in the language that is being acquired. Thus, suppression of (1) must be assumed for languages such as English which do have [+high,

---

[1] See in particular Donegan (1978: §5.2.1), dealing with the limitation of phoneme inventories. In (1) I give a simplified version of the tensing process. More precisely, (1) is the part of the process that concerns high vowels only, and is quoted here with special reference to the limitation of phoneme inventories. The complete formulation the process in Donegan (1978: 64) is as follows:

(i.)    V
       $\begin{bmatrix} \text{palatal} \\ \beta\text{labial} \\ \text{!+long} \\ \text{!higher} \end{bmatrix} \longrightarrow$ [tense]

In the following pages I will make use of the framework outlined by Donegan, although it would do just as well to distinguish (as Dressler 1985 does) between the natural process of tensing — as stated in (i) — and a natural phonological rule (1), forming part of the prelexical constraints on the phonemic systems of the languages concerned.

–tense] vowels. This can result in two opposite (structural) situations, exemplified in (2) below: a language in which (1) is suppressed may have either only [+high, –tense] vowels ((2a)) or two series of high vowels standing in a tense-lax contrast ((2b)).[2]

(2) a. /ɪ ʊ/ Hebrew, Mundari, Tagalog, Tzeltal, Puget Sound, Luiseño, Pomo (South Eastern), Diegueño, Quechua, Georgian; /ɪ ʊ ĩ ũ/ Bengali; /ɪ Y ʊ/ Azerbaijani; /ɪ ɰ ʊ/ Vietnamese; /ɪɰ/ Nunggubuyu; /ɪ/ Hupa;

   b. /i u ɪ ʊ/ Diola, Tampulma, Amo, Maasai, Luo, Tama, Logbara, Kunama, Dani; /i u ɪ ʊ ĩ ũ ĩ ũ/ Punjabi, Akan; /i u ɪ ʊ ĩ ũ ĩ/ Kpelle; /i u ɪ ʊ ĩ ũ/ Zande; /i ʉ ɪ ʊ ʉː/ Mongolian; /i u ʊ/ Kunimaipa; /i u ʊ ĩ ũ ũ/ Igbo; /i ɰ ɪ ʊ/ Somali; /i ɪ ʊ/ Tabi; /i u ɪ ɪ̨ ʉ̠/ Ik.[3]

The (not infrequent) case in which the contrast [±tense] is combined with [±long] ((3a)),[4] and the case in which both tense and lax vowels occur in an (asymmetrical) vowel system but no minimal [±tense] contrast is found ((3b)), are, structurally speaking, different. As far as process (1) is concerned, however, both cases reveal its elimination from the phonology of the language (i.e. its suppression), just as in (2):

(3) a. /iː uː ɪ ʊ/ Irish, Lithuanian, Sinhalese, Arabic, Evenki (both plain and pharyngealized), Iraqw, Hausa; /iː yː uː ɪ Y ʊ/ German; /iː yː ʉː uː ɪ Y ʉ ʊ/ Norwegian; /iː uː ɪ ɨ ʊ/ Kurdish; /iː uː ɪ ɨ ʊ ĩː ũː ĩ ũ/ Hindi-Urdu; /iː ɨː uː ɪ ʊ/ Khmer; /iː ɪ ĩː ĩ/ Navaho; /iː ɪ ʊ ĩː/ Ojibwa; /iː uː ɪ u/ Tonkawa; /y ɪ ɨ̨ ʊ/ Kirghiz;

---

[2] The lists in (2) and (3) contain the whole of the UPSID sample languages in which (1) does not apply. The high vowels occurring in each of them are specified.

[3] In some languages tense and lax high vowels happen to be differentiated by some adjunctive feature: e.g. Hamer /i u ɪˤ ʊˤ/, Burmese /i u ĩ ũ/. For the frequent tenseness and length contrast see (3) below.

[4] This follows from the condition [!+long] in the applicability hierarchy of the tensing process (see (i.), fn.1), as does the fact that it is far more natural for a language to have the oppositions /iː/ vs. /ɪ/, /uː/ vs. /ʊ/, than /i/ vs. /ɪː/, /u/ vs. /ʊː/.

b. /y: ɪ: u: y ɪ u/ Breton; /i: ɨ: u: ɪ u/ Angas; /i ʊ/ Mara-
nungku, Wik-Munkan, Haida, Cayapa, Beembe (both oral
and nasalized), Karok (both short and long), /ɪ u/ Yuchi;
/ɪ ɯ/ Nez Perce; /ɪ ɯ ī ɯ̃/ Amahuaca.

The phonological feature [±tense] has been the subject of
extensive discussion, having often been used as a cover term re-
ferring to parameters as different as muscular effort during the
articulation, length, position of tongue root, etc.[5] See discussion
in Donegan (1974: 229), in which she defines the feature as follows:
"tenseness is a relatively greater degree of color — palatality or
labiality or (in front rounded vowels) both". For our purposes
it is not necessary to dwell on this thorny question. We will
simply work with Donegan's definition, stressing that the main
articulatory-acoustic parameter connected with the phonological
notion of colouring is the peripherality (vs. non-peripherality) of
the tongue position during the articulation.

**1.1.** Italian is among those languages retaining the process
(1) (cf. Tonelli 1984: 91, Hurch 1986: 8), as may be seen from its
vowel system:

(4)   i        u
       e      o
       ɛ      ɔ
          a

External evidence for the operation of the process in Italian
phonology is provided by the difficulty Italian speakers find in
both perceiving and reproducing the contrasts /i ≠ ɪ/ and /u ≠
ʊ/ when learning foreign languages such as English or German
(see Hurch 1986). The restriction is not an absolute one, for
these contrasts may be mastered by Italian speakers, but only
after training and by means of a conscious effort to overcome the
prelexical process under discussion.

---

[5] And, in generative phonology, even as a substantially diacritic feature with
no (synchronic) phonetic motivation, to account for morphonological alter-
nations as in Engl. *divine* ~ *divinity*.

**1.2.** In what follows I aim to show that the suppression of the process must be assumed for some dialects spoken in Southern Italy, differing from standard Italian (henceforth SI) in this respect. Under this assumption it is possible to connect and gain a better understanding of certain facts in the synchrony and diachrony of the vowel systems of the dialects concerned.

**2.** To my knowledge, it has never been proposed for any southern Italian dialect that its high vowels be phonologically represented as lax /ɪ ʊ/, instead of /i u/. (The only exception I know of is Trumper 1980, see below §4.2.) Nevertheless, as for their phonetic realization, although in general we are short on instrumental studies and thorough descriptions of their articulatory and acoustic properties (see however §4.2. for recent experimental work carried out on Calabrian dialects by J. Trumper), the traditional descriptive literature contains evidence leading us to think that such a laxing has indeed taken place in some varieties.

This descriptive literature has focussed mainly on phonetic changes from Latin to modern dialects, resulting in phonemic restructuring. It is well known, for instance, that unstressed posttonic vowels underwent centralization (all merging to /ə/) in a vast area spreading roughly from Campania and the Abruzzi to central Apulia and northern Calabria. Further south, as is also well known, all front unstressed vowels changed to *i* and all back unstressed vowels to *u*. However, it is not usually specified that such high vowels are phonetically somewhat different from their SI cognates. This distinction is made in only a few instances, such as in Schneegans (1888: 49), Pirandello (1891: 16), Meyer-Lübke (1890: 73f), where it is maintained that in Sicilian unstressed Lat. Ī, Ĭ, Ē, Ĕ and Ū, Ŭ, Ō, Ŏ respectively changed to "ein Mittellaut (ị, ụ) zwischen *e* und *i, o* und *u*" (Pirandello's words: while the first two scholars are concerned only with Sicilian, Meyer-Lübke refers this statement to southern Apulian and southern Calabrian as well). With regard to *i u* in stressed position, on the other hand, no such laxing is described by the above authors nor, generally, in other essays known to me dealing with

Sicilian dialects.[6] Rohlfs (1966) reports only lowering (not lax-
ing) of high vowels to [e o] for several Central Sicilian dialects:[7]
Caltanissetta, Calascibetta (AIS Pt.845), Villalba (AIS Pt.844),
Barrafranca and San Cataldo. But some inconsistency does exist
in the AIS charts, given that Rohlfs' transcriptions of the an-
swers he collected in Pts.844 and 845 oscillate between [i ɪ e]
(< Lat. Ī) and [u ʊ o] (< Lat. Ū): e.g. Pt.844 ['ʊn:i tu 'kʊ:si]
'where you're sewing' (VIII, 1533), and [ni'pu:ti] 'nephew' (I, 21),
[ku'sɪsti] '(you) sewed' (VIII, 1537), and ['fim:ini] 'women' (I, 48).
For other Sicilian dialects too, the symbols for lax [ɪ ʊ] appear, al-
beit quite inconsistently, only in a minority of cases: e.g. Pt. 803
(Palermo) [a 'ʊɟ:a] 'the needle' (VIII, 1539), here also oscillating
with those for [ǫ]: [ni'pǫ:ti] 'nephew' (I, 21). And the few data
I personally have collected on Sicilian have convinced me that at
least in some of these dialects the actual pronunciation of high
vowels is quite regularly [ɪ ʊ].

In his AIS recordings for the whole of southern Italy, Rohlfs
usually employs the symbols *i u* for high vowels, but *ị, ụ* (i.e. [ɪ ʊ])
are occasionally also found. For example, in southern Abruzzi and
Molise we find [a 'spɪŋgwələ] 'the pin' (VIII, 1543), [u patə'lɪl:ə]
'the godson' (I, 37) in Morrone del Sannio (Pt. 668 of the At-
las); [lu spusa'lɪtsjə] 'the wedding' (I, 71) in Palmoli (Pt. 658);
['fɪjəmə] 'my son' (I, 9), ['ğʊ:vənə] 'young' (masc. pl.; I, 51) in
Fara S. Martino (Pt. 648); ['ʊ:t:ə] 'mourning' (I, 79) in Scanno
(Pt. 656). But the atlas is a corpus of rather haphazard *parole*
data, and Rohlfs himself must have attributed these few instances
of lax high vowels to performance, since he does not mention the
fact in his grammar (neither for the Abruzzi nor for the other
southern Italian regions: Rohlfs 1966: §4, §§28–40).[8]

In Apulia, lax vowels occur in the AIS recordings for Serra-
capriola (Pt. 706), Lucera (Pt. 707), Ascoli Satriano (Pt. 716),
Canosa (Pt. 717), Ruvo (Pt. 718), Bari (Pt. 719), Alberobello

---

[6] Some remarks on this laxing in Sicilian are now available in Varvaro
(1988: 719).

[7] In quoting data I have translated into the IPA system the transcriptions
adopted in the specified sources.

[8] Giammarco's (1979) review of the dialects of the Abruzzi, while reporting a
lowering of Lat. high vowels for some varieties (e.g. in Penne [fər'mekə] 'ant',
['grel:ə] 'cricket' vs. SI *formica, grillo*), mentions no instances of laxing.

(Pt. 728): e.g. I, 9 ['fɪj:əmə] (Pt. 707), I, 51 ['ǧU:vənə] (Pt.707), ['ǧ:U:vənə] (Pt. 717), ['ǧ:Uvənə] (Pt. 719), I, 75 [mu'rI] 'to die' (Pt. 706, 707, 716, 728), [mə'rI] (Pt. 719), I, 78 [u 'wIdwə] (Pt. 717), [u 'vId:wə] (Pt. 719), I, 79 ['lUt:] (Pt. 707, 728), ['lUt:ə] (Pt. 708), VIII, 1538 ['nU:təkə] 'knot' (Pt. 707), VIII, 1543 ['spIngələ] (Pt. 728).[9] But neither Rohlfs (1966) nor Valente (1975) has anything to say about this. Nor does any other essay specifically devoted to one or the other of those dialects.[10] Still, I have personally gathered abundant evidence to show that in Apulia (in the province of Bari, especially) the laxing actually took place as a regular phonological change (see below, §2.2).

Most essays devoted totally or partly to Lucanian dialects do not report a laxing of high vowels (Lausberg 1939, Rohlfs 1966, Lüdtke 1956: 153ff, and 1979),[11] and Trumper (1980), as far as I know, is rather isolated in maintaining that such a process occurred — as a phonemic restructuring — in Castelluccio Superiore (PZ), as well as in many northern Calabrian varieties.

---

[9] Papa (1981: 369–425) — in spite of the intrinsic problems of his attempt to infer the structures of vowel systems of southern Italian dialects on the sole evidence of the AIS recordings — is accurate in observing the occurrence of [I U] in the AIS data for Lucera, Ruvo, Bari and Alberobello.

[10] See e.g. Piccolo (1938–39) for Lucera, Stehl (1980) for Canosa, Di Terlizzi (1930) for Ruvo, and so on.

[11] However, some of the transcriptions found among the data provided by the authors cited seem to point to the presence of [I U] (as allophones, at the very least). Lüdtke (1979: 82f) has ['sUb:ətə] 'soon', [a 'b:Ud:ə] 'to boil', ['mUskə] 'shoulder', ['nUi] 'we', [a'č:Idə] 'to kill', [pə 'k:Undə 'nuəstə] 'on our account', ['mUt:səkə] '(a) bit', ['kUm:ə] 'how' in the transcription of the text in the dialect of Senise; however, he does not discuss such a laxing in his general remarks on Lucanian phonology. Melillo (1955: 12) reports [u 'fuɪj:ə], for instance (from the dialect of Miglionico, prov. Matera). For certain dialects of central Lucania Bigalke (1976) records words like ['čIməčə] 'bedbug' (§97), ['ɣUlp] 'fox' (§163). As for the dialect spoken in Senise, a careful phonetic transcription of first-hand data is now available in Fanciullo (1988: 676–7). This provides detailed evidence for the laxing of high vowels in this variety: [a 'fIkə] 'the fig', ['fɪj:ə] 'son', ['nIvə] 'snow', ['frUt:ə] 'fruit', ['nUčə] 'walnut', {'krUčə] 'cross', ['kUndətə] '(he) tells'.

Falcone (1976: 10) says that Lat. Ī "passa ad *ị*" in some central and southern Calabrian dialects as well: ['fɪlu] 'thread', ['vɪvu] 'alive', ['špɪna] 'thorn'.[12]

**2.1.** In discussing this evidence — admittedly rather incomplete — my sole purpose has been to lead the reader to mistrust the often much too uniform picture of (southern) Italian dialects to be had from the descriptive literature. Uniformity may sometimes be a product of field linguists' inaccuracy or inadequate theoretical tools. With regard to the present instance, while lax high vowels sometimes appear in published transcriptions of spontaneous speech or of answers to questionnaires, they almost never appear in systematic accounts of phonological systems.[13] And since I intend to show that such accounts do in some cases conceal a quite different situation, it is perhaps in order to say something about the reasons for such an inaccuracy, which may seem puzzling at first glance, but is easily understandable once the nature of our sources for data concerning southern Italian dialects is more carefully considered.

A great deal of the existing descriptive work on these varieties was provided by native speakers, mostly without linguistic training, whose transcriptions are inspired by standard Italian orthography and filtered through their own phonological perception. This literature is still useful, *faute de mieux*, for many dialects, but the linguist must be aware that in such recordings only phonemic characters, dramatically diverging from SI (and therefore regarded as *stereotypes* by the natives themselves) are liable to be grasped correctly. As for subphonemic details, precision may not reasonably be expected.

The second kind of source is represented by Italian dialectological work in the valuable tradition of Carlo Salvioni and

---

[12] The Calabrian dialects concerned are, according to Falcone, those of Ardore, Locri, S. Ilario dello Jonio, (prov. Reggio Calabria), Spadola, Brognotauro, Rocca Bernarda, etc. (prov. Catanzaro). We do not learn from Falcone, however, whether a parallel laxing has affected *u* as well, as one might reasonably expect.

[13] The problem of the unreliability of field-dialectologists is not peculiar to Italy, and in fact it very often happens that a sloppy transcription or an "unconscious normalization in the direction of a small inventory of familiar symbol shapes destroys potential data" (Lass 1984: 76).

Clemente Merlo, whose main concern is to illustrate the pho-
netic development from Latin to modern Romance varieties. The
absence in this literature of accurate descriptions of high vowel
articulation in the dialects concerned may be attributed to their
relatively unproblematic status in a neo-grammarian *Lautlehre*,
in which whatever is believed to remain "the same" over time
generally tends to get left in the background.

To some extent, the same may be said of the outstanding
contribution made by German scholars (e.g. Rohlfs, Lausberg,
Weinrich, Lüdtke etc.) to the knowledge of these dialects. Fur-
thermore, the lack of relevant information about the problem we
are dealing with, even in the most theoretically refined work in
this area, might in part be due to certain well-known drawbacks
in the structuralist view of language. In the present case, once
the two upper slots in the vowel pattern were filled in with the
distinctive specification [+high, +/−front, −/+round], no atten-
tion was paid to phonetic, phonemically redundant detail. Thus
a sort of vulgate was established in the field for the transcriptions
*i u*.

At this point the reader may wish to test my claims. An
easy means for him to do so is provided by the volumes of the
*Profilo dei dialetti italiani* series regarding southern Italian di-
alects. Each of the volumes (Falcone 1976, Valente 1975, Man-
carella 1975, Lüdtke 1979, Giammarco 1979) contains a record-
ing, lasting a few minutes in all, of specimens of some dialects
of the region concerned. The specimens have been phonetically
transcribed by the authors, such transcriptions being very much
of the kind usually found in essays on these dialects. Falcone's
(1976: 94f) text in the dialect of Pozzano (prov. Reggio Calabria)
has *i u* for what is always pronounced [I U]: [ˌčIŋkwanˈtʰUːnU]
'fifty-one', [laˈvUːrU] 'work', [kU ˈnːUi̯] 'with us', [ˈjImːI] '(we)
went', [trIˈmːIːlɐ] 'three thousand'. The same is true for Roc-
cella Jonica (prov. Reggio Calabria): [ˈkUntʰU] '(I) tell', [ˈfIːnU]
'fine', [ˈjImːI] '(we) went', [vInˈdUːtU] 'sold', [kUˈrjUːsU] 'curious';
and for San Giovanni in Fiore (prov. Cosenza): [la vaˈmIʎːa] 'the

family', ['pU:rU] 'also', ['nʮi] 'we', ['tUt:U] 'all'.[14] The transcription of the text in the dialect of Soriano (Catanzaro) is the only one in Falcone's collection in which the symbol ɟ (i.e. [I]) is used. But it is found in only three words ([i'nIt:sja] 'begins', [k:u's:Ini] 'thus', [fa'rIna] 'meal'), whereas both front and back high vowels are regularly [–tense]: ['U:rI] 'hours', [pU'tI:mU 'jI:rI] '(we) may go'. Similar evidence is available for Lucania as well. I have quoted above (fn.11) the text in the dialect of Senise transcribed by Lüdtke (1979), and listed the occurrences of the symbols for [I U] in that transcription. However, listening to the recording it is easy to realize that all the high vowels are lax, in spite of variations in their transcription: ['pIg:jatə] 'takes', ['tUt:] 'all', [rə't:sU:l] 'jug', [I stən'dI:nə] 'intestine'.[15] This suggests that in the Lucanian and Calabrian varieties just cited (for Apulian I shall quote some similar examples in §2.2) a laxing of Lat. high vowels seems to have taken place. Of course, much more is required than the recording of one speaker's spontaneous speech to be able to draw more definitive conclusions on this topic. Still, the problem with Italian dialects is that, while there are plenty of general surveys covering large areas, we simply do not have reliable studies on single varieties which assess their phonological systems. In the history of research, the stage of "classical" phonemic description was skipped over, so that the literature passed straight from neo-grammarian-like historical phonetics and (later) geolinguistic surveys to sophisticated sociolinguistic inquiries.

The laxing of (late) Lat. /i u/ in many varieties from Southern Italy is also confirmed by external evidence. Indeed, as Canepari (1983) argues in his description of the phonetics of the so called *italiani regionali* of the Abruzzi, Molise, Campania, Lucania, Apulia, Calabria and Sicily, speakers born in those regions, when speaking SI, show a consistent tendency to realize Italian /i u/, whether stressed or unstressed, as [I U]. (This observation may be verified by listening to the tape-recordings he provides.)

[14] Tense [i], on the other hand, is found in the nucleus of the metaphonic diphthong from Lat. Ĕ: ['tiᵉmpə] 'time' (see below, §4.1–2 for similar cases).

[15] In Senise too tense [i u] occur in the diphthongs [uə iə] (< Ŏ Ĕ): ['puərk] 'pig', ['muərt] 'dead' (masc.), ['piəɾə] 'feet', [kUr'tiəd:] 'knife'.

This is of course also relevant to the phonology of the corresponding dialects, since the phonetics of regional varieties of Italian is largely the product of the application to SI phonemic structure of those phonological processes that are active in the dialects spoken by the same speakers.

**2.2.** The difficulties discussed above emphasise the need for collecting new, more systematic data on this dialect area, which can be made use of for our present discussion. This is why I begin my discussion from dialects which I surveyed directly.

After some years of field research I can say that in the dialects spoken within the province of Bari (Apulia) high vowels are as a rule lax, though this is at odds with most material currently available in the relevant literature, where [+high] vowels are usually transcribed *i u*.

To illustrate my claim, I will briefly describe the stressed vowel system of the dialect of Altamura (prov. Bari, *Altamurano*, henceforth Altam.):

(5)　　I　　　U
　　ai̯　e　　　o　au̯
　　　ε　　　ɔ
　　　　a

The high vowels, which have a less peripheral articulation than that of their SI counterparts, show the following allophonic variation, depending on syllable structure and (for /U/ only) consonantal environment:

(6) $\begin{bmatrix} V \\ +\text{stressed} \\ +\text{high} \end{bmatrix} \longrightarrow \begin{bmatrix} \text{lower} \\ \alpha \text{ place} \end{bmatrix} \begin{bmatrix} \text{higher} \\ \text{glide} \\ \alpha \text{ place} \end{bmatrix} / \underline{\quad} (\text{!}^\$\text{CV}) \, \#\#$

e.g. /fɪlə/ → ['fi̯il̯] 'thread', /mɪ/ → [mɪi̯] 'my, mine' '(m. sg.); /sUtə/ → ['sUu̯t] '(he) sweats', /tU/ → ['tUu̯] 'your(s)' (m. sg.).

This diphthongization is the product of a general sentence-allophonic phonological rule active in Altam.:

(7) $\begin{bmatrix} V \\ +\text{stressed} \\ -\text{low} \end{bmatrix} \longrightarrow \begin{bmatrix} \text{lower} \\ \alpha \text{ place} \end{bmatrix} \begin{bmatrix} \text{higher} \\ \text{glide} \\ \alpha \text{ place} \end{bmatrix} / \underline{\quad} (\text{!}^\$\text{CV}) \, \#\#$

which turns any stressed vowel other than /a/ occurring in an open penultimate or final syllable into a sequence of vowel plus homorganic glide when the word containing it is followed by a pause (whether syntactically or pragmatically determined). The examples in (6) are quotation (i.e. prepausal) forms, with diphthongized stressed vowels (contrast ['fɪlə 'ɲ:Uu ɾ] 'black thread', ['sUt a's:ɛi] 'sweats a lot', where diphthongization does not apply in /fɪlə/ and /sUtə/, according to the elsewhere condition in (9)). The exclamation mark in the statement of the context indicates that diphthongization is most noticeable in open penultimate stressed syllables, whereas it is weaker in oxytones. This fact may be traced back to general conditions on stress: in general, it can be said that in Italian stress is more pronounced in penultimate than in final syllables (cf. Bertinetto 1981: 75f discussing acoustical measurements of durational values).

(8)
$$\begin{bmatrix} +\text{stressed} \\ +\text{back} \\ +\text{round} \\ +\text{high} \end{bmatrix} \longrightarrow [-\text{back}] / \begin{Bmatrix} \# \\ C \end{Bmatrix} \underset{[-\text{grave}]}{\_} \begin{Bmatrix} C^\$ CV \\ (C)^\$ CVCV \end{Bmatrix} \#$$

e.g. /Ursə/ → ['Yrs] 'bear', /sUt̆t̆ə/ → ['sYt:s] 'dirty', /stUšənə/ → ['stYš ə ŋ ə] 'turtoise'; /cUmmə/ → ['cYm̥:] 'lead', /frUnd̆ə/ → ['frYnd̥ z] 'leaves' (f. pl.), /šənUccə/ → [šə'nYc:] .'knee'.

On the basis of both structural and external evidence, the fronting of /U/ in stressed antepenultimate and closed penultimate syllables must be viewed as a synchronical allophonic rule. First, [Y] never contrasts with [U], and the two phones occur in complementary distribution. They also alternate within paradigms: ['sUut] '(he) sweats' ∼ ['sYt ə ŋ ə] '(they) sweat', [a'n:Uuš] '(you) bring' ∼ [a'n:Yš ə ŋ ə] '(they) bring' (but ['fUum̥] '(he) smokes' ∼ ['fʷUm̥ ə ŋ ə] '(they) smoke' without fronting, after a [+grave] consonant). Secondly, Altam. speakers tend to pronounce (regional) Italian *u* in the same way in those contexts specified in (8). And in the latter case there is no doubt that the phonemic intention is a high back rounded vowel, just as in SI: e.g. ['frYt:ɔ] 'fruit', ['nY:vɔlɐ] 'cloud', ['ǧ:Ystɔ] 'right' (cf. Loporcaro 1988: 208).

(9)　　V　　⟶　　V　　　/elsewhere

$$\begin{bmatrix} +\text{high} \\ \alpha\text{place} \end{bmatrix} \quad \begin{bmatrix} +\text{high} \\ \alpha\text{place} \end{bmatrix}$$

As specified in its context, this rule of preservation applies in any case where none of the conditions listed in (6) to (8) is met; e.g. /nɪɟɟə/ → ['nɪ ɟ:] 'kite', /pɪɟɟənə/ → ['pɪ ɟ :ə ɳ ə] '(they) take', /sʊkwɪvələ/ → [sʊ'kwɪɥ ə ] ə] 'juicy' (m. sg.), /sɪtə#wʊ/ → ['sɪtə 'wʊ̬ᵘₒ] 'are you'; /pʊtˇtˇə/ → ['pʷʊt:s] 'well' (n.), /ngʊtənə/ → ['ŋgʷʊtə ɳ ə] 'anvil', /pʊrə#tʊ/ → ['pʊrə 'tʊᵘₒ] 'you too'.[16]

After the stress only [ə] may occur, and the vowel system in protonic position (also strongly reduced) consists only of [ə a ʊ], alternating with stressed /ɪ e ɛ/, /a/, and /ɔ o ʊ/ respectively.[17]

Lax high vowels in Altam. and tense high vowels in standard Italian share the same diachronic source, *viz.* Lat. long /i:/ and /u:/,[18] as may be seen from the following pairs of cognate words:

| Altam. | [ja'd:ḻịṇ] | = SI | [ga'l:i:na] | 'hen' |
|---|---|---|---|---|
| | ['skrɪt:] | = | ['skrit:o] | 'written' |
| | ['lʊụṇ] | = | ['lu:na] | 'moon' |
| | ['fʷʊm̥ə ɳ ə] | = | ['fu:mano] | '(they) smoke'. |

This is also the case for all the dialects spoken in the province of Bari which I have surveyed. Although the vowel systems of these dialects differ greatly from one another (for a general survey of the vocalism of these varieties see Stehl 1980 and Papa 1981), it may be stated that wherever Lat. high vowels were

---

[16] The reader is referred to Loporcaro (1988) for further detail on this dialect (and on the phonemic analysis presupposed here): note that in previous studies on this dialect high vowels were incorrectly transcribed *i u* (Mazzotta 1967, Cirrottola 1977, Papa 1986: 101, 122ff, 491ff).

[17] Cf. the following alternations: ['pɪ ɟ :] 'take' ~ [pə 'ɟ:aɳ:] 'taking', ['senḏ] 'to feel' ~ [sən'dɪịm̥] 'we feel', ['vɛnǧ] ~ [vən'ǧɪ̥ʲₒ] '(he) won', ['pʷɔnǧ] 'to sting' ~ [pʊn'ǧɪ̥ʲₒ] '(he) stang', ['m̥ʷʊnǧ] '(you) milk' ~ [mʊn'ǧai] '(he) was milking', ['prouf] 'try' ~ [prʊ'wɛʲₒ] 'to try'.

[18] Actually in Altam., as in all the dialects of southern Italy, metaphony has merged Lat. stressed Ē, Ǐ and Ō, Ŭ with Ī and Ū respectively, when occurring in words originally ending in high vowels (Loporcaro 1988: 25), so that the diachronic source for /ɪ ʊ/ in these varieties is in fact wider than that for /i u/ in SI.

not affected by any other phonemic change (e.g. diphthongiza-
tion resulting in the restructuring of the underlying form),[19] they
developed into /I/ and /ʊ/, unlike what happened in the major-
ity of Romance languages.[20] I am basing this claim on my own
field research in Santeramo in Colle, Gravina di Puglia, Canosa di
Puglia, Spinazzola, Minervino Murge, Toritto, Barletta, Corato,
where Lat. FILIU and PUTEU turned to ['fɪj:] and ['pʊt:s].[21]
The reader may easily verify this statement, so far as the dialect
of Bari is concerned, by listening to the record accompanying Va-
lente (1975), which reveals that what the author transcribes as *i
u* is actually [I ʊ]: [ma'tI:n̩] 'morning', ['kId:] 'those', ['dI^i] 'days',
[a's:ʊt:] 'dry', ['pʊlp] 'polyp', ['lʊt:] 'mourning'.

---

[19] In Carbonara (prov. of Bari), for instance, both Lat. Ī and Ū in open
stressed penultimate syllables have become ['ø:ə]: ['nø:ətə] 'nest' (< NĪDU),
['mø:ələ] 'mule' (< MŪLU) (cf. Merlo 1926); in Bitonto (prov. of Bari), in
the same context Ī > ['ɔ:i̯], Ū > ['i:u̯]: ['vɔ:i̯tə] 'life' (< VĪTA), ['li:u̯čə]
'light' (< LŪCE) (see Merlo 1912).

[20] Of course what I claim to be rare in this linguistic domain is only the context-
free phonemic change /i/ > /I/, /u/ > /ʊ/. In fact, even if one considers
Italo-Romance alone, instances of high vowels laxing are sometimes observed.
But in most cases this was a phonetic change which was included in the syn-
chronic derivation in the form of an allophonic, context-sensitive rule, and did
not lead to phonemic restructuring. Thus, in Borgo San Sepolcro (province
of Arezzo, eastern Tuscany), /i/ and /u/ (from Lat. Ī and Ū respectively)
underwent laxing in checked stressed syllables (['čɪŋkwe] 'five', ['vɪsto] 'seen'
vs. [bi'ši:ka] 'blister', [ǧan'ǧi:va] 'gum'; ['ʊndiši] 'eleven', ['bʊsto] 'bust' vs.
['mbu:to] 'funnel', ['nu:do] 'naked') being still derivable through an allophonic
rule

(i)     [+high] → [−tense]/__ C$^{\$}$     (data from Merlo 1929).

A similar stage needs to be reconstructed for the dialects of Emilia, where
(i) apparently used to apply until the Western Romance shortening of long
consonants took place. This led to a phonemic contrast between stressed
vowels in ['fi:la] 'row' vs. ['vɪla] 'villa', ['di:z] '(he) says' vs. ['fɪs] 'steady',
['sku:d] 'shield' vs. ['sʊt] 'dry', ['su:ga] '(he) dries' vs. ['sʊča] '(he) sucks'
(data from Malagoli's 1910–13 description of the dialect of Novellara, prov.
of Reggio Emilia). Here too, however, there was no general phonemic change,
as in the dialects around Bari, but rather a change [ɪ] ∼ [i:] > /I/ ≠ /i:/
through suppression of (i), after its application context was lost.

[21] Although — as I repeat — in the descriptions of all these dialects so far avail-
able, the symbols *i u* are used to transcribe those sounds. Stehl (1980), Papa
(1981), and Loporcaro (1988) list the existing literature on these Apulian
varieties, which I shall not reproduce here.

As Trumper (1980) argues, some dialects of southern Lucania and northern Calabria apparently show the same laxing of high vowels. I will discuss this below (§4.2; see also above, §2.1).

**3.** Interestingly enough, the phonetical-phonological specification [+high, −tense] of Apulian and Calabro-Lucanian high vowels, which renders them different from their SI omologous /i/ /u/, correlates with a difference in distribution.

**3.1.** The phonemic status of the glides [j w] is one of the most debated topics in (standard) Italian phonemics. The two competing analyses are: (a) /j w/ are phonemes distinct from the high vowels /i u/; (b) [j w] are allophonic prevocalic variants of the high vowels (see Muljačić 1972: 72ff, Tonelli 1984: 76 for discussion and references). Paradigmatic contrast may not be used as an argument in favour of either hypothesis, because of the different contexts of occurrence.[22] Thus, proponents of (b) have argued that the impossibility of syntagmatic contrast (Italian has no */ji wu/ or */ij uw/ sequences) provides evidence for the allophonic status of [j w].

**3.2.** The dialects spoken in Apulia and Lucania differ from standard Italian in this respect, allowing sequences of glide + homorganic high vowel (examples from Altamura):

(10)  ['jɪnd̥] 'inside', ['jɪ̬ɔ̣] 'I', ['jɪd̥:] 'he', ['jɪŋ̣ʝ] '(you) fill',
[a'jɪɾ:] 'yesterday', ['wUst] 'taste', ['wUn̥ʒ̣čʒ̣] 'eleven'.

Initial glides in the words quoted derive diachronically from a process of prosthesis tending to prevent vowels from occurring in initial position. In the present *état de langue*, however, they are no longer automatically inserted in the course of derivation: restructuring took place, resulting in their phonemicization, as is proved by minimal pairs like:

---

[22] Some minimal pairs have actually been produced, but they are open to criticism because of their different syllabic structures: *la quale* [la'kwa:le] 'who' (fem.) vs. *lacuale* [laku'a:le] 'lacustral', *spianti* ['spjanti] '(you) uproot' vs. [spi'anti] 'spying upon' (plur.).

(11)  ['jɪ 'jau̯t] 'I inhabit'    ≠   [ɪ 'jau̯t] 'the troughs'
      ['janǧə ļ ə] 'Angelo'    ≠   ['anǧə ļ ə] 'angel'.

Once we have established the phonemic value of glides we may state that a phonemic matrix with the structure

(12)  $\begin{bmatrix} +\text{high} \\ \alpha\text{front} \\ -\alpha\text{back} \\ -\alpha\text{round} \\ -\text{syll} \end{bmatrix}$  $\begin{bmatrix} +\text{high} \\ \alpha\text{front} \\ -\alpha\text{back} \\ -\alpha\text{round} \\ +\text{syll} \end{bmatrix}$

is allowed in this dialect whereas it is not in SI. This is satisfactorily explainable in connection with the different specifications of high vowels in the two varieties. In SI the prelexical process (1) is operating, consequently the phonemes /i/ /u/ have to occupy the most extreme positions in vocalic space immediately adjacent to the places of articulation of the two approximants [j w]. There would thus scarcely be enough phonetic ground for a contrast in production, and above all in perception, within a syntagmatic sequence [ji] or [wu], which explains the non-occurrence of such sequences in Italian.[23]  But in the dialect of Altamura (and in

---

[23] Phonemic sequences /ji/ /wu/ are rarely found across languages: see Ohala and Kawasaki (1984: 122ff), who explain this by the fact that "[wu] and [ji]... create minimal modulations in amplitude, periodicity, and spectrum", and exclude that sonority hierarchies may play a role in barring sequences of this sort. Indeed, no sonority hierarchy could account for the difference between [wu ji] and [wi ju], since the contrast in sonority is just the same, but the latter are much more frequently met with. In Italian too [wi ju] are fully acceptable and pronounceable (['wiski] *whisky*, ['juːta] 'jute'), although rare for independent diachronical reasons (they were bled by the changes turning Lat. /w/ to /v/ and /j/ to /ǧ/ in strong — i.e. syllable-initial — position). This acoustical explanation agrees with the hypothesis adhered to here, according to which [wu] and [ji] are excluded (in Italian and in the other languages in which they are not allowed) because of their intrinsic phonetic content, reflected in (or determined by) their phonological specification. The change in this specification ([+tense] → [−tense]) through the suppression of process (1) made it possible for other diachronic changes (prosthesis, in the specific case of Altamurano) to create the new phonemic sequences in Apulian and Lucanian exemplified in (12).
A formal explanation for the rarity of /ji/ and /wu/ has recently been put forward by Hayes (1989: 300f), and runs as follows: /j w/ share all their distinctive features with /i u/, the only thing liable to distinguish them being the value assigned to [± consonantal]. Hayes assumes that in languages where /ji wu/ are found, /j w/ are marked [+consonantal], thereby remaining

many other Apulian and Lucanian dialects) the suppression of the process (1) resulted in the laxness of high vowels. /I U/ being [−tense] do not occupy such an extreme position as /i u/, and this creates the ground for a sufficient contrast in the sequence (12).

The examples quoted so far, although taken from Altam., are representative of a larger area, as may be seen by consulting the dictionaries of Apulian dialects, in which words presenting such sequences are listed. (The transcriptions used in such dictionaries do not fully mirror phonetic detail: in particular, high vowels are written *i u*, which I modify into [I U] on the basis of my own field notes, whenever possible.) In the province of Bari one may quote, for Bitonto, ['jɪd:ə] 'he', ['jɪndə] 'within', ['jɪrtə] 'high', ['wUj:ə] 'oil', ['wUs:ə] 'bone' (Saracino 1957: 216, 497), for Grumo Appula ['jɪd:ə] 'he', ['jɪndə] 'within', [U wUrtU'ø:n] 'the greengrocer' (Colasuonno 1976: 51, 97), for Minervino Murge ['jɪd:ə] 'he', ['jɪndə] 'within', [ˌjɪɲ:ə'tɛurə] '(act of) filling' (Campanile (1975: 51), for Barletta ['jɪd:] 'he', ['jɪr:] 'were (2nd sg.)' (Digaeta 1985: 17, 35). Further south, in the provinces of Taranto and Brindisi, Rohlfs (1956–61) lists *ji* 'I' (Taranto, Palagiano, Cisternino, p.278), *jiddə* 'he' (Cisternino, Ostuni, Taranto, Martina Franca, Palagiano, p.266), *jindrə* 'within' (Palagiano, Taranto, p.270). There are words beginning with [jI wU] in Lucanian as well, as is shown by Bigalke (1980: 345ff, 937ff): e.g. ['jɪd:ə] 'he', ['jɪrmətə] 'sheaf (of corn)', ['wUt:ə] 'barrel'. If one were to argue for the laxing /i/ > /I/, /u/ > /U/ as a general phenomenon in southern Italian dialects (but to do so the evidence quoted in §2 would have to be substantially enlarged), one would not be surprised to observe that the dictionaries of all these dialects, from the Abruzzi to Sicily, record many entries with initial *ji*-: see e.g. Varvaro (1986: 385ff) *jíditu* 'finger', *jímmu* 'hump', *jinízza* 'heifer'; Rohlfs (1977: 337ff) *jígliu* 'lily', *jífu* 'rude', *jinípru* 'juniper'; D'Ambra (1873: 212) *ji* 'to go', *jídeto* 'finger'; Giammarco (1969: 951ff) *jilénə* 'frost', *jímə* 'river'.

---

distinct from the high vowels. On the contrary, whenever */ji wu/ are ruled out, this is because the glides are marked [−consonantal]. As their feature matrices coincide fully with those for /i/ and /u/, the sequences are barred as an effect of the Obligatory Contour Principle.

**4.** We still have to discuss the most interesting possible consequence of the hypothesis we started from. The suppression of (1) would, at least in principle, leave open the possibility of a phonemic contrast between [±tense] high vowels of the type found in the languages quoted in (2b). This theoretical possibility is not made use of in the dialects of Bari, Altamura, Toritto, Spinazzola etc. (see above, §2.2), which only have [+high, −tense] vowels and in this respect resemble the languages in (2a). As we have seen, these vowels derive from the same diachronic source as Italian /i/ /u/ (i.e. Lat. Ī, Ū), which implies that there is no source enabling the gap in the system (the two empty positions [+high, +tense]) to be filled, unless some vowel shift takes place.

**4.1.** This is in fact what happened in the dialects of Canosa di Puglia and Minervino Murge, two towns on the north-western border of the province of Bari, where a phonemic contrast /i ≠ ɪ/ /u ≠ ʊ/ was established whose occurrence is limited to closed syllables. In this syllabic context Lat. Ī Ū resulted in lax /ɪ ʊ/, just as in Bari, Altamura, etc., whereas in open penultimate and in final syllables they underwent diphthongization.[24] On the other hand, Lat. Ĕ Ŏ underwent metaphony, as in all cognate dialects, first diphthongizing to *jé wó and then evolving further through the following stages *ie úe > iə úə > i u. This last change is still to be completed, so that both [uᵉ] and [u(·)] and, respectively, [iᵉ] and [i(·)] are heard in words like ['gruᵉs:]/['gru·s:] 'big', ['nuᵉst]/['nu·st] 'our(s)' (masc.), ['muᵉrt]/['mu·rt] 'dead' (masc.), [pau̯'riᵉd̦:]/[pau̯'ri·d̦:] 'poor' (masc.), ['viᵉrd̦]/['vi·rd̦] 'green' (masc.). The final result of this ongoing development in these dialects is a pair of [+high, +tense] vowels that enter into

---

[24] The phonetic realization of diphthongs from Ī Ū shows a certain degree of variability in these dialects. For Canosa Ī > [ɔ:i] and Ū > [œ:u] is found in AIS, and Stehl (1980: 16, 132) reports Ī > [ø:i] ~ [i:i], Ū > [e:u] most frequently, but also [ø:u] ~ [œ:u] ~ [ə:u] in the pronunciation of the elderly. In Canosa I recorded Ī > [ø̆:i] ~ [ɨ:(i̥)], e.g. ['ɟ̟:n] 'end' (SI *fine*), and Ū > (oscillating among different speakers) [e̅:u̯] ~ [ə̆:u̯], e.g. [nɨ̆'š:e̅:u̯n] 'nobody'. In Minervino Stehl recorded Ī > [œ:i] (now only in the pronunciation of the elderly) > [ɛ:i], and Ū > [ɔ:u] (among the elderly, now rare) > [ɛ:u̯] whereas my informants have Ī > [e:i̥] (e.g. [a'me:i̯č] 'friends'), and Ū > [ɐ̯:u̯] ~ [ẽ:u̯] (e.g. [tra'te̞:u̯r] 'drawer').

a [±tense] correlation with /I U/, as is proved by minimal pairs like:

(13)   ['sUt:s]  'dirty'   ≠  ['su·t:s]  'alike' (masc.);
       ['rUs:]   'red'    ≠  ['gru·s:]  'big' (masc.);
       ['tUrd̦]  'thrush'  ≠  ['tu·rt]  'wrong' (n.);
       ['vInd̦]  'twenty'  ≠  ['vi·nd̦]  'wind';
       ['vIst]   'seen'   ≠  ['vi·st]  '(women's) clothes'.[25]

The rearrangement of the phonological system exemplified in (13) is liable to occur in dialects where Ĕ Ŏ developed into diphthongs with tense nuclei (see the examples from San Giovanni in Fiore, in Calabria, and Senise, in Lucania, quoted above, notes 14 and 15) before turning to monophthongs. In some other varieties, though, the laxing was extended to the nuclei of metaphonic diphthongs as well, so that their monophthongization leads to a merger with the reflexes of Lat. Ī Ū, as in Bari (Valente 1975: 17) or in Altamura, where pairs like ['vInd̦] 'twenty' (< Ĭ, which merged with Ī because of metaphony) = 'wind' (< Ĕ) and ['vIst] 'seen' (< Ī) = 'clothes' (< Ĕ) have become homophones.

**4.2.** Vowel shifts of the kind discussed above, initiated by the monophtongization of metaphonic diphthongs, are reported by Lüdtke (1956: 153–74) for several dialects in central-southeastern Italy. But in none of the varieties considered there does restructuring in the vowel system seem to have given rise to a contrast /i ≠ I/, /u ≠ U/. As we learn from Trumper (1980: 268), this happened in many dialects of the so called Lausberg zone, i.e. in some southern Lucanian (Castelluccio Inferiore) and several northern Calabrian dialects (Trebisacce, Amendolara, Oriolo, Montegiordano, Roseto Capo Spulico, Nocara). For each of these, Lausberg (1939) had described a three-heights vowel system

---

[25] Cf. Loporcaro (1988: 35). Again, in the literature on these varieties a correct description of such facts would be sought in vain. The vowel system given by Papa (1981), who only works on second-hand data, simply reflects AIS recordings. Stehl (1980: 196ff), conducting a detailed investigation of Minervinese and Canosino phonological systems, maintains that a merger is presently taking place, through a stage of (alleged) free variation. This inference is contradicted by my informants, in whose opinion the phonemic contrast at issue is sharp and clear, and is even considered a stereotype for Canosino at least.

/i ɛ a ɔ u/. According to Trumper, though, the metaphonic diph-
thongs from Ĕ Ŏ turned to monophthongal /i u/, which remain
distinct from /ɪ ʊ/ (< Lat. Ī Ū) only in closed syllables. Here
are the minimal pairs which Trumper quotes from the dialect of
Amendolara (prov. Cosenza): ['vində] 'winds' ≠ ['vɪndə] 'twenty',
['pin:ačə] 'bunch of grapes' ≠ ['pɪn:ačə] 'bedbug', [(pi)'d:zir:ə]
'soaking wet' ≠ ['d:zɪr:ə] 'oil jug'; ['(γ)rus:ə] 'big' (masc.) ≠
['rʊs:ə] 'red' (masc.), ['uc:ə] 'eye' ≠ [(γun)'ʊc:ə] 'knee'. And this
is the stressed vowel system of the above dialects in both closed
— (14)a. — and open — (14)b. — syllables:

(14)a.　i　　u　　b.　i　　　u
　　　　I　　U
　　　　ɛ　　ɔ　　　　ɛ　　　ɔ
　　　　　a　　　　　　　a

Experimental evidence concerning the acoustic structure of
high vowels in the dialects of Calabria has recently been provided
by Trumper, Romito & Maddalon (1991: 64–68). Most interesting
to us is the illustration of the /i/ vs. /ɪ/ and /u/ vs. /ʊ/ contrasts
in Trebisacce, Oriolo and Rocca Imperiale, as well as the vowel
charts representing the vowel systems of neighbouring dialects in
which the contrasts between [±tense] high vowels have not been
established: from the Cosenza vowel chart it results clearly that
high vowels are lax.

　　**5.** Natural Phonology regards the phonological system of
a language as the product of the combined operation of several
(prelexical) phonological processes. One of such processes — tens-
ing, as proposed by Donegan (1978) in her study on vowel systems
— has been focused on in the present paper. The empirical object
of our discussion has been provided by the description of a set of
divergent properties which differentiate some southern Italian di-
alects from standard Italian (as well as from most of the dialects
spoken in the rest of Italy). We have seen that all these differences
can be accounted for under the hypothesis that the two groups
of varieties minimally differ in terms of suppression vs. retention
of the process of tensing. This good descriptive result confirms
the efficacy of a process phonology model, and the fruitfulness of

this kind of approach to the study of similarities and differences displayed by the phonological systems of related dialects.

Address of the author: Michele Loporcaro
Scuola Normale Superiore
Piazza Cavalieri, 7
I–56100 Pisa (Italy)

## REFERENCES

AIS: Karl Jaberg & Jacob Jud. 1928–40. Sprach- und Sachatlas Italiens und der Südschweiz. 8 voll. Zofingen: Ringier.

Bertinetto, Pier Marco. 1981. Strutture prosodiche dell'italiano. Firenze: Accademia della Crusca.

Bigalke, Rainer. 1976. Beiträge zur Kenntnis der Mundarten Mittel-Lukaniens. Münster (diss.).

Bigalke, Rainer. 1980. Dizionario dialettale della Basilicata. Heidelberg: Winter.

Campanile, Alceste. 1975. Lessico dialettale minervinese. Palo del Colle: Liantonio.

Canepari, Luciano. 1983. Italiano standard e pronunce regionali. 2nd ed. Padova: CLEUP.

Cirrottola, Gaspare. 1977. Parlə kɔmə t'à ffattə màmətə, Dialetto altamurano. Palo del Colle: Liantonio.

Colasuonno, Giovanni. 1976. Grammatica e lessico del dialetto di Grumo Appula. Cassano: Tipografica Meridionale.

Digaeta, Pietro. 1985. Nostalgia di Barletta, I. Elementi di Grammatica del Vernacolo Barlettano. Barletta.

Di Terlizzi, Bartolo. 1930. Lessico rubastino-italiano. Ruvo di Puglia: Sez. ANIF.

D'Ambra, Raffaele. 1873. Vocabolario napolitano-toscano domestico di arti e mestieri. Napoli.

Donegan(-Miller), Patricia Jane. 1974. "A Critical Bibliography of the Tense-Lax Distinction in Vowels." Ohio State University WPL 17, 222–231.

Donegan, Patricia Jane. 1978. On the natural phonology of vowels. Ohio State University WPL 23.

Dressler, Wolfgang U. 1985. Morphonology: the dynamics of derivation. Ann Arbor: Karoma.

Falcone, Giuseppe. 1976. Calabria. Profilo dei dialetti italiani 18. Pisa: Pacini.

480

Fanciullo, Franco. 1988. Lucania. In: Holtus et al., 669–688.

Giammarco, Ernesto. 1969. Dizionario Abruzzese e Molisano. 2nd. vol. Roma: Edizioni dell'Ateneo.

Giammarco, Ernesto. 1979. Abruzzo. Profilo dei dialetti italiani 5. Pisa: Pacini.

Hayes, Bruce. 1989. "Compensatory Lengthening in Moraic Phonology." Linguistic Inquiry 20, 253–306.

Holtus, Günter, Michael Metzeltin & Christian Schmitt (eds.). 1988. Lexikon der Romanistischen Linguistik. Volume IV. Italienisch, Korsisch, Sardisch. Tübingen: Niemeyer.

Hurch, Bernhard. 1986. "Elementi di una fonologia contrastiva naturale." Lingua e Stile 21, 3–26.

Lass, Roger. 1984. "Vowel system universals and typology: prologue to theory". Phonology Yearbook 1, 75–111.

Lausberg, Heinrich. 1939. Die Mundarten Südlukaniens. Halle (Saale): Niemeyer. (= Beiheft 90 zur Zeitschrift für romanische Philologie).

Loporcaro, Michele. 1988. Grammatica storica del dialetto di Altamura. Pisa: Giardini.

Lüdtke, Helmut. 1956. Die strukturelle Entwicklung des romanischen Vokalismus. Bonn: Romanisches Seminar an der Universität.

Lüdtke, Helmut. 1979. Lucania. Profilo dei dialetti italiani 17. Pisa: Pacini.

Maddieson, Ian. 1984. Patterns of sounds. Cambridge: Cambridge University Press.

Malagoli, Giuseppe. 1910–13. "Studi sui dialetti reggiani. Fonologia del dialetto di Novellara." Archivio Glottologico Italiano 17, 29–197.

Mancarella, Giovan Battista. 1975. Salento. Profilo dei dialetti italiani 16. Pisa: Pacini.

Mazzotta, Giuseppe. 1967. "Il vocalismo tonico del dialetto di Altamura." Annali della Facoltà di Magistero dell'Università di Bari 6, 417–424.

Melillo, Michele. 1955. Atlante fonetico lucano. Roma: S. Marcello.

Merlo, Clemente. 1912. "Note fonetiche sul parlare di Bitonto (Bari), parte 1$^a$ Vocalismo." Atti R. Accad. d. Scienze di Torino 47, 907–932.

Merlo, Clemente. 1926. "Il vocalismo tonico del dialetto di Carbonara di Bari." L'Italia dialettale 2, 85–99.

Merlo, Clemente. 1929. "Consonanti brevi e consonanti lunghe nel dialetto di Borgo S. Sepolcro." L'Italia dialettale 5, 66–80.

Meyer-Lübke, Wilhelm. 1890. Italienische Grammatik. Leipzig: Reisland.

Muljačić, Žarko. 1972. Fonologia della lingua italiana. Bologna: Il Mulino.

Ohala, John J. & Haruko Kawasaki. 1984. "Prosodic phonology and phonetics." Phonology Yearbook 1, 113–127.

Papa, Eugene. 1981. Two Studies on the History of Southern Italian Vocalism. Ph.D. diss. Indiana University (= Ann Arbor: University Microfilms International 1986).

Piccolo, Francesco. 1938–39. "Il dialetto di Lucera." L'Italia dialettale 14, 189–200 & 15, 83–100.

Pirandello, Luigi. 1891. Laute und Lautentwickelung der Mundart von Girgenti. Halle (Saale): Waisenhaus.

Rohlfs, Gerhard. 1956–61. Vocabolario dei dialetti salentini (Terra d'Otranto). München: Verlag der Bayerischen Akademie der Wissenschaften.

Rohlfs, Gerhard. 1966. Grammatica storica della lingua italiana e dei suoi dialetti. 1st vol. Torino: Einaudi.

Rohlfs, Gerhard. 1977. Nuovo Dizionario Dialettale della Calabria. Ravenna: Longo.

Saracino, Giacomo. 1957. Lessico dialettale bitontino. Bari: STOS.

Schneegans, Heinrich. 1888. Laute und Lautentwickelung des sicilianischen Dialectes. Strassburg: Trübner.

Stehl, Thomas. 1980. Die Mundarten Apuliens. Historische und strukturelle Beiträge. Münster/Westfalen: Aschendorffsche Verlagsbuchhandlung. (= Forschungen zur romanischen Philologie, hrg. von Heinrich Lausberg, Heft 22).

Tonelli, Livia. 1984. Überlegungen zur Natürlichen Phonologie: Eine kontrastive Analyse des Boznerischen und des Südtiroler Italienischen. Trieste: Università di Trieste.

Trumper, John. 1980. "La zona Lausberg ed il problema della frammentazione linguistica." In: Federico Albano Leoni (ed.). I dialetti e le lingue delle minoranze di fronte all'italiano. Roma: Bulzoni, 267–303. (= SLI 16/I).

Trumper, John, L. Romito & Marta Maddalon. 1991. "Vowel systems and areas compared: definitional problems." In: Emanuela Magno Caldognetto & Paola Benincà (eds.). L'interfaccia tra fonologia e fonetica. Padova: Unipress.

Valente, Vincenzo. 1975. Puglia. Profilo dei dialetti italiani 15. Pisa: Pacini.

Varvaro, Alberto. 1986. Vocabolario etimologico siciliano. 1st vol. Palermo: Centro di Studi Filologici e Linguistici Siciliani.

Varvaro, Alberto. 1988. Sicilia. In: Holtus et al., 716–731.