La comunicazione parlata
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La comunicazione parlata

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MARIA **ROCCAFORTE**

contributi di

FEDERICO ALBANO LEONI, GABRIELLA ARDITA, IOLANDA ALFANO, CHIARA BONSIGNORI
PENNY BOYES BRAEM, SIMONA BRUSCO, VIRGINIA CALABRIA, LIDIA CALABRÒ, GAIA CALIGIORE
OLGA CAPIRCI, MARINA CASTAGNETO, VIOLETTA CATALDO, CRISTIANA CERVINI, FRANCESCA CHIUSAROLI
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VALENTINA SACCONE, PAOLA VERNILLO, GIOVANNI VINCIGUERRA
VIRGINIA VOLTERRA, AMIR ZUCCALÀ

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NON-STRUCTURAL VOWEL REDUCTION IN ITALIAN
A STUDY ON DIAPHASIC AND DIATOPIC VARIATION[1]

Luisa Troncone, Claudia Roberta Combei

Riassunto: Il contributo indaga le variazioni diafasica e diatopica nella produzione delle vocali estreme toniche di otto parlanti di sesso femminile provenienti da quattro regioni italiane (Campania, Lazio, Puglia, Sardegna), utilizzando gli scarti tra gli spazî vocalici e l'occorrenza della riduzione non sistematica tra due situazioni comunicative diverse. La raccolta dei dati ha previsto due fasi: la prima è consistita in una lettura di frasi; per la seconda fase si è optato per il task *trova le differenze*. Le analisi hanno mostrato che le variabili considerate hanno un effetto significativo per /a/ e per la varietà campana per /u/.

Parole chiave: riduzione vocalica, spazio vocalico, analisi fonetica

Abstract: The contribution investigates diaphasic and diatopic variation in the production of extreme tonic vowels by eight female speakers from four distinct Italian regions (Campania, Lazio, Puglia, Sardegna). The analysis focuses on deviations in vowel space and the potential for unsystematic reduction across two communicative contexts. Data collection involved two phases: the first consisted of sentence reading; for the second phase, a *spot the difference task* was chosen. The analyses show that the variables considered have a significant effect especially for /a/, and for the Campanian /u/.

Keywords: vowel reduction, vowel space, phonetic analysis

(1) This paper represents a collaborative effort between the two authors. In accordance with Italian academic conventions, authorship is attributed as follows: L. Troncone and C.R. Combei co-authored §1 Introduction and §3 Analyses, L. Troncone authored §2 The study, while C.R. Combei authored §4 Conclusions.

1. Introduction[2]

Within the spectrum of linguistic variation, the diatopic dimension stands out as the most influential in the context of Italian (Berruto 1987: 26). This dimension remains consistently relevant across diverse situations and irrespective of the speaker's cultural background. As noted by Berruto (2017), this aspect was even more evident in the past.

In general, the most recognizable diatopic variants for Italian concern the segmental productions, where both consonants and vowels exhibit noticeable variation.

This study examines vowel variation, focusing particularly on vowel reduction (see Section §2 for a discussion on this phenomenon) as it occurs across different Italian varieties. Italian vowels have been known to undergo influences from reduction phenomena, as shown by several experimental phonetic studies (among others, Vayra 1989; Giannini & Pettorino 1992). We conduct an acoustic analysis of stressed extreme vowels within the systems[3] of regional varieties of Italian: Lazio, northern Puglia, Campania, and Sardegna (area of Campidanese substratum region). Theoretically, these vowels are expected to exhibit the highest stability, at least within the Italian vowel system. We examine stressed extreme vowels to elucidate the prevalence of a distinct form of reduction referred to as *unsystematic reduction*, identified by Savy & Cutugno (1997). *Unsystematic reduction*, also known as *non-structural reduction*, denotes a reduction which is not triggered by variation in accentual configuration but rather by diatopic and/or diaphasic differences. This phenomenon is reportedly common, especially in the dialectological context (Lo Prejato *et al.* 2004; Lo Prejato 2004).

Our investigation revolves around two central research questions concerning both diatopic and diaphasic variations. The first question pertains to how vowel spaces vary across the four Italian regions considered. The second question regards the reduction phenomenon more explicitly, as we are interested in understanding whether a less controlled

(2) The authors would like to thank Franco Cutugno and Mario Vayra for their insightful suggestions, provided during stimulating discussions at the GSCP conference in Rome (June 2023). We are also grateful to Mario Vayra for sharing his articles on this research topic.

(3) We will not deal in depth with middle vowels because they show extreme variability and unsystematic pronunciation (see Marotta & Vanelli 2021).

articulation (presumably system-oriented rather than output-oriented, Lindblom 1990) leads to a more consistent reduction in vowel production.

Regarding the first inquiry, we expect Sardinian informants to exhibit the least extended vowel space. This expectation arises from the fact that Sardinian has also preserved the timbre of short Latin vowels, which due to their brevity in spontaneous speech could be the site of target undershoot (Virdis 1978; Lindblom 1963). On the contrary, we expect the wider vowel space to correspond to the Campanian variety, due to the lower and more posterior pronunciation of /a/ (Bertinetto 2010: 21). As regards the second research question, our expectation aligns with the findings of Savy and Cutugno (1998: 2) regarding hypoarticulated speech: they defined this reduction as being characterized by "timbre reduction due to hypoarticulation", which manifests through a) rightward movement of the anterior axis, including /a/; b) lower F1 variability; c) overlapping (or adjacency) of vowel areas.

2. The study

2.1. *Reduction*

Reduction is a linguistic phenomenon which involves some kind of under-specification of the signifier, may it be in duration or clearness of articulation (Zellers *et al.* 2018: 1). In the latest decades it has been rightfully argued that the existence of a reduced form somehow implies the existence of a canonical one and/or of a continuum between the two (Nolan 1992). It is fundamental to emphasize, however, that the aforementioned canonical form, which could look like the rule, actually represents the exception (Cangemi & Niebuhr 2018: 279). Thus, reduced forms are the ones that occur naturally in language use (Cutugno *et al.* 2018). Reduction is not to be considered a sign of laziness; rather, it is often viewed favorably as an indicator of fluency (Flege & Bohn 1998: 36). Moreover, reduction frequently arises from co-articulation (Lo Prejato 2004: 163), signifying that it is a natural consequence of the coordinated movements of the speech articulators.

The occurrence of reduction phenomena has been linked mainly to accentual patterns (as in Vayra *et al.* 1999; Kocharov *et al.* 2015), duration of vowels (Burdin & Clopper 2015), and hypoarticulation (Meunier & Espesser 2011). Studies on reduction have considered primarily unstressed vowels, which end up getting closer to a *schwa*, and further from the vowels they were supposed to sound like (see Kapatsinski *et al.* 2020). According to Lindblom (1963), this has also to do with the overall reduced duration of unstressed vowels (Loporcaro 2015), compared to the usually longer stressed vowels. Reduction is to be distinguished, according to Mowrey & Pagliuca (1995), in *substantial* and *temporal* reduction, which they consider being the basis for most phonological changes (Mowrey & Pagliuca 1995: 108). Savy & Cutugno (1997) further distinguished between *hypoarticulation* and *structural centralization*, that is reduction due to prosody (accentual structure). They noticed that the lower the articulatory accuracy, the more productive the phenomenon of reduction is in unstressed vowels. Some contexts are said to favor reduction (Kapatsinski *et al.* 2020: 20-21), such as rapid speech or less controlled speech. Conversely, other contexts are reported to hinder reduction, such as when segments carry information that needs to be emphasized. In the context of this study, we will consider as *reduced* those forms that do not appear to meet the presumed standard articulation, as defined by mean production frequencies (from Albano Leoni & Maturi 2002: 106).

2.2. *Data*

For the purposes of this research, we chose a sample which, although not representative of the wider population, is adequate for a more in-depth segmental analysis (Calamai 2015: 21, 39). Some essential data on the informants are reported in Table 1. As can be seen from the table, for each of the four regions considered, we interviewed two young female informants.

The data were collected within an anechoic chamber situated at the Experimental Phonetics Laboratory at the University of Pavia. The data collection process comprised two distinct phases. Initially, participants were instructed to read the stimuli sentences featuring the foreseen occurrences of stressed /i/, /u/, and /a/ in standard Italian. Subsequently, in order to elicit (semi-)spontaneous speech, we employed a *spot the difference*

type task, for which the eight participants were divided into randomly selected pairs. During this phase participants were also prompted to produce the three target vowels, resulting in a total of 144 tokens. The occurrences taken into consideration showed the vowels in different contexts, sometimes including diphthongs: despite their frequent non-segmentability (Leoni & Maturi 2002: 120), we believe that in the read speech samples there was a discrete solution of continuity.

Table 1. Some information about the informants.

Region of origin	Puglia	Puglia	Campania	Campania	Lazio	Lazio	Sardegna	Sardegna
ID	C	E	D	G	A	H	B	F
Age	24	24	18	25	22	19	25	19

3. The analyses

We conducted an acoustic analysis of the tonic vowels, starting from the automatic extraction of their formant frequencies. Table 2 presents the mean formant values for each vowel, expressed in both Hertz (Hz) and normalized Bark scale, to ensure representation unaffected by individual anatomical differences. These values are categorized by region and type of speech ("speech", in Table 2).

In addition, a quantitative evaluation was conducted, with descriptive statistics and representation of vowel spaces through F2-F1 plots using the vowels package (Kendall & Thomas 2018) for R (R Core Team 2022). Mixed-effects models (lmer) were fit with the REML criterion to evaluate the effect of the speaker's region of origin ("variety") and "speech" (read vs. spontaneous) as well their interaction on the production of the three vowels, using "speaker" as the random effect.

A differential analysis was performed using the Euclidean distance. Vowel spaces, approximated to triangular shapes, were calculated through the Sarrus method. Reduction was observed through an analysis of the distance of the vowels from the centroid: this was interpreted to mean that if the average distance of a certain vowel from the centroid was lower in spontaneous speech than in read speech, a reduction in the articulation[4] took place.

(4) In this contribution we considered speaking and reading as extremes of the same continuum similarly to what Labov did (in Calamai 2015: 76); this approach was feasible due to

Table 2. Vowel formants mean values (in Hz and normalized in Bark).

vowel	variety	speech	Mean_F1 (Hz)	SD_F1 (Hz)	Mean_F2 (Hz)	SD_F2 (Hz)	Mean_F1 (Bark)	SD_F1 (Bark)	Mean_F2 (Bark)	SD_F2 (Bark)
a	Campania	read	722.1	171.7	1593.4	170.3	6.6	1.2	11.5	0.7
a	Campania	spontaneous	902.7	124.0	1536.2	93.6	7.9	0.8	11.2	0.4
a	Lazio	read	783.7	101.7	1345.1	176.6	6.8	0.7	10.3	0.9
a	Lazio	spontaneous	733.6	89.4	1451.8	267.6	6.8	0.7	10.8	1.3
a	Puglia	read	668.1	66.2	1597.9	220.2	6.3	0.5	11.3	0.9
a	Puglia	spontaneous	764.8	98.7	1464.6	137.3	7.0	0.7	10.9	0.6
a	Sardegna	read	622.3	34.3	1533.0	282.1	5.9	0.3	11.2	1.2
a	Sardegna	spontaneous	735.0	99.3	1347.4	258.2	6.8	0.7	10.3	1.0
i	Campania	read	331.4	78.8	2575.5	325.0	3.3	0.8	14.6	0.9
i	Campania	spontaneous	378.3	85.9	2487.3	272.0	3.8	0.8	14.4	0.7
i	Lazio	read	394.6	69.2	2543.8	163.1	3.9	0.6	14.6	0.4
i	Lazio	spontaneous	422.7	87.6	2571.8	229.8	4.2	0.9	14.7	0.6
i	Puglia	read	404.5	69.9	2463.6	166.8	4.0	0.6	14.4	0.5
i	Puglia	spontaneous	426.7	43.3	2341.0	422.9	4.3	0.4	13.9	1.4
i	Sardegna	read	369.1	51.6	2539.9	392.9	3.7	0.5	14.5	1.2
i	Sardegna	spontaneous	375.2	88.1	2556.4	303.2	3.8	0.8	14.6	0.8
u	Campania	read	376.7	88.7	1545.9	119.7	3.8	0.9	9.3	0.5
u	Campania	spontaneous	344.4	52.6	1164.9	373.2	3.5	0.5	9.3	2.0
u	Lazio	read	389.2	56.4	1229.2	281.5	3.9	0.5	9.7	1.6
u	Lazio	spontaneous	372.8	89.7	1079.3	299.7	3.7	0.9	8.9	1.7
u	Puglia	read	433.6	27.0	1505.1	108.1	4.3	0.3	10.4	0.5
u	Puglia	spontaneous	387.0	51.8	1264.9	233.0	3.9	0.5	9.9	1.2
u	Sardegna	read	369.6	103.1	1190.0	242.1	3.7	1.0	9.1	1.4
u	Sardegna	spontaneous	385.6	77.9	990.4	125.8	3.9	0.9	8.4	0.8

For reference, the mean values of the vowels considered were compared with values for standard Italian available in Albano Leoni & Maturi (2002: 106), and reported in Table 3, below.

the high level of education shared by all participants in our study.

Table 3. Mean values of F1 and F2 in standard Italian (according to Albano Leoni & Maturi 2002:106).

Vowel	/a/	/i/	/u/
F1	708 ± 87	275 ± 61	305 ± 55
F2	1466 ± 109	2240 ± 160	861 ± 135

Table 4 displays the mean vowel space values for the eight informants. The variables variety and speech show statistically significant effects ($p \approx 0.05$) in linear mixed-effects models with speaker as a random effect.

Table 4. Comparison of vowel spaces in read and spontaneous speech for each region (standard Italian vowel space is purely theoretical and was calculated with the values in Albano Leoni & Maturi 2002:106).

	Lazio		**Campania**		**Sardegna**		**Puglia**		**Standard Italian**
	Read	Spontaneous	Read	Spontaneous	Read	Spontaneous	Read	Spontaneous	
Vowel spaces (Hz^2)	258056.9	276715.7	194066.4	360447.6	172025.9	265091.6	119593.8	199671.6	**286643.5**

Although Savy & Cutugno (1997) argue that stressed vowels are less susceptible to reduction, they may still be considered as possible sites of the manifestation of such a phenomenon, which is connected to the level of attention paid to the articulation of speech.

With regard to the first research question, Table 4 presents the areas of the vowel spaces of the speakers grouped by region, considering the two diaphasic situations separately. From Table 4, we note that not only do the vowel spaces vary considerably from region to region, but there is also a significant intra-speaker variation, with regard to production circumstances. Spontaneous speech areas seem to always be larger than read speech areas. If the largest is reportedly the Campanian spontaneous area, the smallest seems to be the read speech area of speakers from Puglia. This observation is counterintuitive when considering reduction phenomena: one would expect reduction to result in a convergence of the vowels towards the center, leading consequently to a contraction of the vowel space.

The second research question involved specifically reduction. The distance from the centroid, which can be seen in Tables 5, 6 and 7[5], is calculated, in particular, as the distance from the centroid of the centroids of each speaker. This way, the centroid was calculated considering the production of each and all speakers, as to avoid an individual evaluation of reduction phenomena. Concerning this research question, we will make some punctual observations before speaking of generalities.

Table 5. Comparison between the distances from the centroid of the productions of /a/ in the two communicative situations.

Vowel	**a**							
Region	Puglia		Campania		Lazio		Sardegna	
Diaphasic situation	Read	Spontaneous	Read	Spontaneous	Read	Spontaneous	Read	Spontaneous
Distance from centroid	174.2	**332.1**	224.0	**412.6**	433.2	319.1	186.3	**403.2**

Table 6. Comparison between the distances from the centroid of the productions of /i/ in the two communicative situations.

Vowel	**i**							
Region	Puglia		Campania		Lazio		Sardegna	
Diaphasic situation	Read	Spontaneous	Read	Spontaneous	Read	Spontaneous	Read	Spontaneous
Distance from centroid	784.0	659.5	907.1	195.8	862.8	**889.0**	865.0	**880.2**

Table 7. Comparison between the distances from the centroid of the productions of /u/ in the two communicative situations.

Vowel	**u**							
Region	Puglia		Campania		Lazio		Sardegna	
Diaphasic situation	Read	Spontaneous	Read	Spontaneous	Read	Spontaneous	Read	Spontaneous
Distance from centroid	201.9	**443.2**	201.2	**301.1**	476.8	**626.0**	493.8	**710.3**

(5) Cases where the production in spontaneous speech deviates more substantially from the centroid, compared to read speech, are highlighted in bold.

Comparing the values of F1 and F2 of /u/ to the ones in Leoni & Maturi (2002: 106), it can be seen that it undergoes a systematic undershot. Observing Table 2 and Table 3 reported above, it is evident that none of the informants produces /u/ with the expected F2 (it appears lowered). The situation for /i/ is more regular. Apulian speakers show a noticeable retreat for /a/ and a rise or posterior production for /u/. Campanian speakers present a significant lowering of /a/, which is not at all surprising, as the stressed /a/ pronounced in a more posterior and low way in varieties from Campania (but also Ligurian and Piedmontese) is already documented in sociophonetic research (Maturi 2023: 33). From these data it is evident how /a/ and /u/ are often the site of a distancing from the centroid when the speaking situation presents a lower control level.

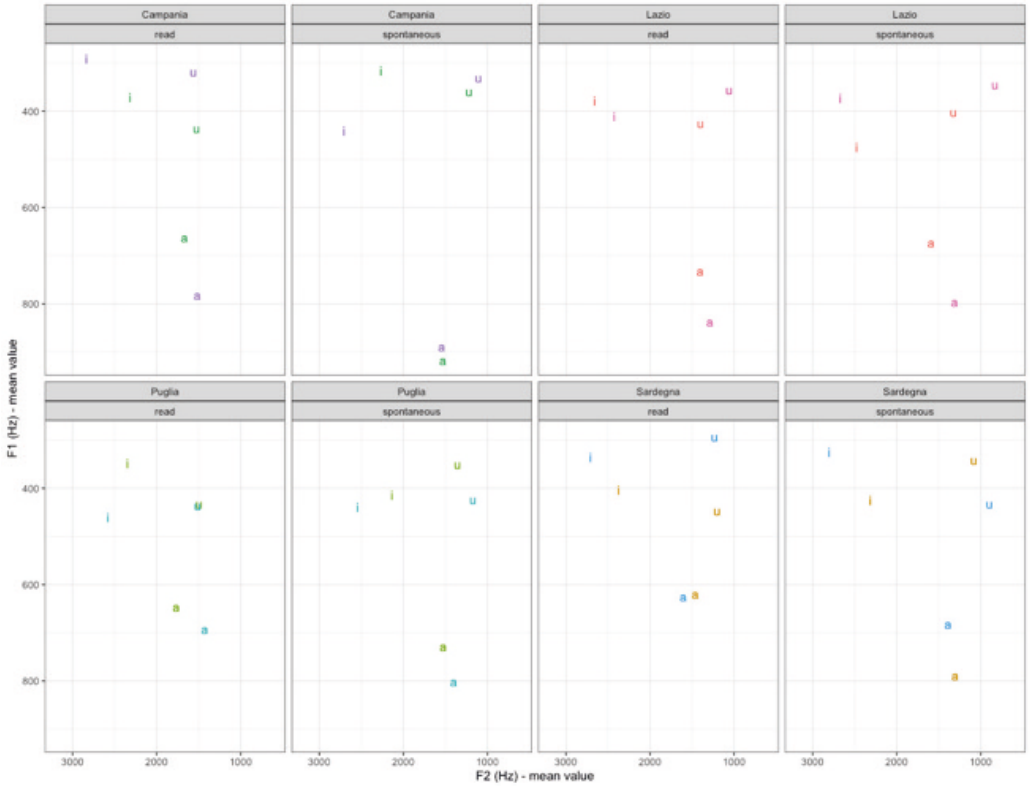

Figure 1. Plot of the production of the vowels considered grouped by region and type of speech.

From a more general point of view, as shown in Figure 1, there is a non-stable presence of non-structural reduction for the analyzed vowels

if we consider exclusively the criterion of the distance from centroids. In this regard, a non-structural reduction is observed in the following instances: solely in the variety of Lazio for /a/; in Campanian and Apulian speech for /i/; whereas /u/ does not exhibit any relevant occurrence of such a phenomenon (see Figure 2 for a visual representation of the shifts).

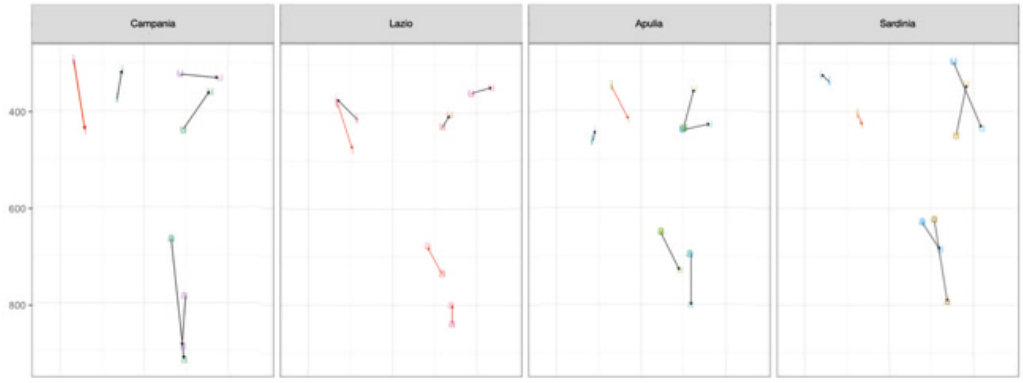

Figure 2. Plot of the production of the vowels considered grouped by region, red arrows are for "reduced" vowels.

Conversely, if we consider the features outlined by Savy & Cutugno (1997) identifying the "forms" of reduction, which encompass (a) a shift toward the right of all anterior vowels (/a/ included), (b) lower variability of F1, and (c) the overlapping of vowel spaces, our results diverge to some extent. First, our inquiry shall be directed towards the F2 values. If F2 is lower in spontaneous speech than in read speech for /i/ and /a/, (a) is fulfilled. The shift under examination fails to manifest within the Lazio sample for either of the aforementioned vowels, nor within the Sardinian sample for /i/. At the same time, it means that this specific form of reduction does in fact occur for all vowels of the varieties of Campania and Puglia and both for /a/ and /u/ of the Sardinian variety. Regarding (b), a lower variability of F1 is visible for /a/ in the Lazio variety, whereas no such behaviour manifests for either of the remaining vowels in the other varieties. As regards (c), we shall consider Figure 3. A higher rate of overlapping of vowel areas in spontaneous speech is visible just for the varieties of Lazio and Puglia.

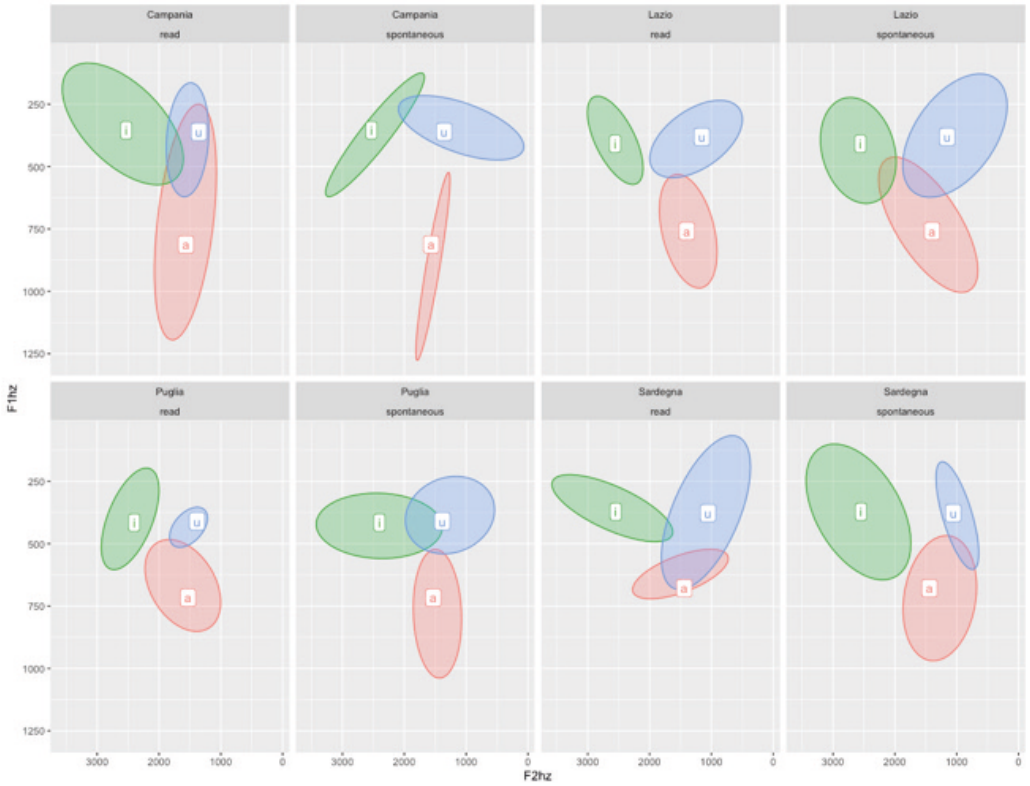

Figure 3. Ellipses of the extension of the vowels considered grouped by region and diaphasic situation.

In Table 8 a summary of the incidence of the three criteria for reduction can be found. These parameters, qualitatively, show a quite inconsistent occurrence of the phenomenon; as for investigating it further, these descriptive observations were combined to statistical modelling.

Table 8. Summary of the values for the features in Savy & Cutugno (1997).

Region	Puglia			Campania			Lazio			Sardegna		
Vowel	/a/	/i/	/u/	/a/	/i/	/u/	/a/	/i/	/u/	/a/	/i/	/u/
a)	+	+	+	+	+	+	-	-	-	+	-	+
b)	-	-	-	-	-	-	+	-	-	-	-	-
c)		+			-			+			-	

Linear mixed-effects modeling revealed statistically significant differences ($p < 0.05$) in the realization of the vowel /a/ across varieties and diaphasic situations. For the vowel /u/, the analysis indicated that the

regional variety variable held greater explanatory power. In particular, Campanian spontaneous speech exhibited unique characteristics when compared to the other varieties (and read speech) included in the study. Finally, the vowel /i/, did not display any statistically significant variation ($p > 0.05$) across varieties and diaphasic situations.

4. Conclusions

In this paper we analyzed the high and low vowels of eight female speakers from four Italian regions, in order to observe their unsystematic reduction in diaphasically varying scenarios.

The findings of our study are briefly outlined here. Differently from what we expected, the analysis revealed that Apulian speakers exhibited the narrowest vowel space. Conversely, the Campanian vowel space, which we hypothesized to be the widest, only confirmed our expectation in the less controlled scenario. Interestingly, in fact, the Campanian vowel space contracted by more than half in read speech conditions. This finding provides preliminary acoustic evidence for the substantial influence of speech context on pronunciation. Presumably, while reading, the speakers exerted greater control over their production, whereas this control mechanism appeared less effective (or entirely absent) in the spontaneous speech recording.

Contrarily to what we predicted based on Savy and Cutugno (1997), the reduction does not show the proposed characteristics; instead, we see, to a large extent, a widening of the vowel space for all the varieties.

The generalizability of the afore-mentioned findings may be limited due to the sample size and its non-representativeness of the overall population. Nonetheless, these results can serve as a springboard for further investigations on the reduction phenomenon in the Italian territory. Future investigations exploring non-systematic reduction with larger and more diverse speaker samples would be valuable as they would allow for robust statistical investigation of the trends observed in our paper. We also believe that a deeper examination of specific varieties, such as Lazio, is needed due to the presence of distinct regional configurations of reduction patterns (Avolio 2010). For instance, the potential

overlap between /i/ and /e/ vowel spaces observed in Rome and Rieti (namely the specific varieties of the speakers analyzed here) suggests the need for further investigation into this phenomenon. This rationale, of course, extends to other regional Italian varieties as well, indicating the need for future research to explore the complexity of the vowel reduction phenomenon as a function of sociolinguistic variables.

References

Albano Leoni, Federico & Maturi, Pietro, *Manuale di fonetica*, Carocci, Roma 2002.

Avolio, Francesco, «Dialetti laziali», Treccani Online, Enciclopedia dell'Italiano, https://www.treccani.it/enciclopedia/dialetti-laziali_(Enciclopedia-dell%27Italiano)/, 2010.

Berruto, Gaetano, *Sociolinguistica dell'italiano contemporaneo*, Carocci, Roma 1987.

Berruto, Gaetano, «Dinamiche nell'architettura delle varietà dell'italiano nel ventunesimo secolo», in G. Caprara & G. Marangon Bacciolo (a cura di), *Italiano e dintorni: la realtà linguistica italiana: approfondimenti di didattica, varizione e traduzione*, Peter Lang Alemania, Frankfurt am Main 2017, pp. 7-31.

Bertinetto, Pier Marco, «Fonetica italiana», in R. Simone, G. Berruto & P. D'Achille (a cura di), *Enciclopedia dell'Italiano*, Istituto dell'Enciclopedia Italiana G. Treccani, Roma 2010.

Bohn, Ocke-Schwen, «Cross-language and second language speech perception», in E.M. Fernández & H.S. Cairns (a cura di), *The handbook of psycholinguistics*, Wiley Blackwell, Hoboken 2018, pp. 213-239.

Burdin, Rachel Steindel & Clopper, Cynthia G., «Phonetic reduction, vowel duration, and prosodic structure», *Proceedings of the XVIII International Congress of Phonetic Sciences* (Glasgow, 10-14 agosto 2015), I.C.Ph.S. (International Congress of Phonetic Sciences), Glasgow 2015.

Cangemi, Francesco & Niebuhr, Oliver, «Rethinking reduction and canonical forms», in F. Cangemi, M. Clayards, O. Niebuhr, B. Schuppler & M. Zellers (eds.), *Rethinking reduction*, De Gruyter Mouton, Berlin, Boston 2018, pp. 277-302.

Cutugno, Francesco, Origlia, Antonio & Schettino, Valentina, «Syllable structure, automatic syllabification and reduction phenomena», in F. Cangemi, M. Clayards, O. Niebuhr, B. Schuppler & M. Zellers (eds.), *Rethinking reduction*, De Gruyter Mouton, Berlin, Boston 2018, pp. 205-242.

Calamai, Silvia, *Introduzione alla sociofonetica*, Carocci, Roma 2015.

Giannini, Antonella & Pettorino, Massimo, *La fonetica sperimentale*, Edizioni Scientifiche Italiane, Napoli 1992.

Kapatsinski, Vsevolod, Easterday, Shelece & Bybee, Joan, «Vowel reduction: A usage-based perspective», *Italian Journal of Linguistics* 32/1, 2020, pp. 19-44.

Kendall, Tyler & Thomas, Erik, «Package 'vowels': Vowel Manipulation, Normalization, and Plotting», *CRAN* version 1.2-2, 2018.

Kocharov, Daniil, Kachkovskaia, Tatiana & Skrelin, Pavel, «Position-dependent vowel reduction in Russian», *Proceedings of the XVIII International Congress of Phonetic Sciences* (Glasgow, 10-14 agosto 2015), I.C.Ph.S. (International Congress of Phonetic Sciences), Glasgow 2015.

Lindblom, Björn, «Spectrographic study of vowel reduction», *Journal of the Acoustical Society of America* 35/11, 1963, pp. 1773-1781.

Loporcaro, Michele, *Vowel length from Latin to Romance*, Oxford University Press, Oxford 2015.

Lo Prejato, Manuela, «Vocali finali 'vere' vs vocali finali 'false': gradi di riduzione e verifiche quantitative», in P. Cosi (a cura di), *Atti del 1° convegno nazionale AISV – "Misura dei Parametri": aspetti tecnologici ed implicazioni nei modelli linguistici*, EDK Editore, Torriana 2005, pp. 161-178.

Marotta, Giovanna & Vanelli, Laura, *Fonologia e prosodia dell'italiano*, Carocci, Roma 2021.

Maturi, Pietro, *Napoli e la Campania*, Carocci, Roma 2023.

Meunier, Christine & Espesser, Robert, «Vowel reduction in conversational speech in French: the role of lexical factors», *Journal of Phonetics* 39/3, 2011, pp. 271-278.

Mowrey, Richard, & Pagliuca, William, «The reductive character of articulatory evolution», *Italian Journal of Linguistics* 7/1, 1995, pp. 38-124.

R Core Team, «R: A language and environment for statistical computing», R Foundation for Statistical Computing, Vienna 2018. Available online at https://www.R-project.org/.

Savy, Renata & Cutugno, Francesco, «Hypospeech, vowel reduction, centralization, how do they interact in diaphasic variations?», *Proceedings of the XVIth International Congress of Linguists*. Pergamon, Oxford 1998, pp. 1-13.

Savy, Renata & Cutugno, Francesco, «Ipoarticolazione, riduzione vocalica, centralizzazione: come interagisono nella variazione diafasica?.», F. Cutugno (a cura di), *Fonetica e fonologia degli stili dell'italiano parlato: atti delle 7. giornate di studio del Gruppo di fonetica sperimentale A.I.A.*, (Napoli, 14-15 novembre 1996), Tipografia Esagrafica, Roma 1997, pp. 177-194.

Savy, Renata, Clemente, Giuliana, Lo Prejato, Manuela, «Per una caratterizzazione e una misura della riduzione vocalica in italiano», in P. Cosi (a cura di), *Atti del 1° convegno nazionale AISV – "Misura dei Parametri": aspetti tecnologici ed implicazioni nei modelli linguistici*, EDK Editore, Torriana 2005, pp. 135-160.

Vayra, Mario, «Aspetti della riduzione vocalica in italiano», *Atti del XVII Convegno Nazionale AIA* (Parma, 12-14 aprile 1989), A.I.A.(Associazione Italiana di Acustica), Parma 1989, pp. 421-426.

Vayra, Mario, Avesani, Cinzia & Fowler, Carol A., «On the phonetic bases of vowel-consonant coordination in italian: a study of stress and "compensatory shortening"», *Proceedings of the XIV International Congress of Phonetic Sciences* (San Francisco, 1-7 agosto 1999), I.C.Ph.S. (International Congress of Phonetic Sciences), Berkeley 1999, pp. 495-498.

Virdis, Maurizio, *Fonetica del dialetto sardo campidanese*, Edizione della Torre, Cagliari 1978.

Zellers, Margaret, Schuppler, Barbara & Clayards, Meghan, «Introduction or: why rethink reduction?», in F. Cangemi, M. Clayards, O. Niebuhr, B. Schuppler & M. Zellers (eds.), *Rethinking reduction*, De Gruyter Mouton, Berlin, Boston 2018, pp. 1-24.

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