Vowel variation in the Mišótika Cappadocian of Mandra (Larissa)

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Η παρούσα μελέτη εξετάζει το φωνηεντικό σύστημα των Μιστιώτικων, που αποτελεί γλωσσική ποικιλία της Καππαδοκικής διαλέκτου. Πιο αναλυτικά, η έρευνα έχει ως στόχο να αναδείξει τις γλωσσικές αλλαγές που φαίνεται να έχει υποστεί το φωνηεντικό σύστημα της Καππαδοκικής ποικιλίας έπειτα από την μετανάστευση των Καππαδοκών στην Ελλάδα, στα πλαίσια ανταλλαγής των πληθυσμών μεταξύ Ελλάδας και Τουρκίας (1923–1924). Συγκεκριμένα, η ανάλυση βασίζεται σε ηχογραφήσεις διαλεκτικού λόγου 10 φυσικών ομιλητών της Μιστιώτικης ποικιλίας (5 άνδρες, 5 γυναίκες) από μια Καππαδοκική κοινότητα στην περιοχή της Θεσσαλίας (χωριό: Μάνδρα). Στην εν λόγω περιοχή κατοικούν απόγονοι των Μιστιωτών προσφύγων, καθώς και ντόπιοι, που μιλούν τη διαλεκτική ποικιλία της Λάρισας, με αποτέλεσμα να αποτελεί μεικτή γλωσσική κοινότητα.

Σύμφωνα με προηγούμενες μελέτες, το φωνηεντικό σύστημα απαρτιζόταν από 8 φωνήεντα /a, e, i, o, u, œ, y, ɯ/, αναδεικνύοντας τη στενή επαφή που είχε η διάλεκτος με την Τουρκική γλώσσα μέχρι και την περίοδο εγκατάστασης των Καππαδοκών στην Ελλάδα. Ως εκ τούτου, στόχος αποτελεί να προσδιορίσουμε και να ερμηνεύσουμε τη μορφή που έχει πάρει το φωνηεντικό σύστημα της Καππαδοκικής ποικιλίας στις μέρες μας και να αναλύσουμε τα ακουστικά χαρακτηριστικά των φωνηέντων, λαμβάνοντας υπόψιν τους μηχανισμούς γλωσσικής επαφής και αλλαγής, καθώς και τις κοινωνικές παραμέτρους που φαίνεται να επηρεάζουν τη διαμόρφωση του διαλεκτικού συστήματος.

Μέσα από τα αποτελέσματα της έρευνας αποδεικνύεται ότι το φωνηεντικό σύστημα, που χρησιμοποιούν οι ομιλητές της διαλέκτου από την Μάνδρα, αποκλίνει σημαντικά από το παλαιότερο γλωσσικό σύστημα της διαλέκτου. Παράλληλα φανερώνονται σημαντικές διαφορές στην κατανομή των φωνηέντων στο φωνηεντικό χώρο, οι οποίες οφείλονται στην ύπαρξη χρόνιας γλωσσικής επαφής κάτω από ποικίλες κοινωνιογλωσσικές συνθήκες. Τέλος, το γένος δείχνει να αποτελεί έναν σημαντικό κοινωνιογλωσσικό παράγοντα που επηρεάζει εξίσου τη διαμόρφωση του φωνηεντικού συστήματος, καθώς οι άνδρες ομιλητές δείχνουν να βρίσκονται ένα βήμα πιο μπροστά στη διαδικασία της γλωσσικής αλλαγής.

Keywords: Mišótika, Cappadocian, vowel system, linguistic change, gender

1. Introduction

The present study examines the vowel system of contemporary Mišótika, which is a language variety of Cappadocian Greek originating in the village of Misti[1]. After

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the forced migration of the Cappadocians in Greece (1923–1924), the vowel system of Mišótika Cappadocian inescapably underwent several linguistic changes stemming from dialect contact and negative language attitudes of the locals against Cappadocian migrants. Our research aims to present the linguistic changes that the vowel system of Mišótika Cappadocian has undergone and to investigate how vowels are distributed in the vowel space in light of dialect contact and gender influences.

Our data relies on the speech analysis of Mišótika speakers from the Cappadocian community of Mandra (near Larissa) and discuss the characteristics of the vowel system taking into consideration mechanisms of language contact and linguistic change (see, e.g., Trudgill 1986; Chambers et al. 2002; Hickey 2010). We also study the effect of gender (see, e.g., Holmes & Meyerhoff 2003; Coates 2013; Eckert & McConnell-Ginet 2013), because it was found that the two genders perform different social roles in their community.

Section 2 provides key information relating to the historical and linguistic background of Cappadocian Greek. Section 3 contains the research methodology and some information about the Cappadocian community under investigation. In Section 4 we present the results of the acoustic analysis of the Cappadocian variety vowel system, split up by gender. In Section 5 we discuss and interpret the revealed Cappadocian variation patterns in more detail. Finally, in Section 6 we showcase the research conclusions.

2. Historical and linguistic background

Cappadocian is a linguistic variety of Greek origin, which had been in contact with Turkish for almost nine centuries following the invasion of Seljuks in the 11th century and the conquest of the Byzantine Asia Minor by the Ottomans in the 14th century. Thus it is a Greek-Turkish long-term contact variety, which was spoken by Greek Orthodox Christians in what is now the Central Anatolian Region of present-day Turkey until the population exchange between Greece and Turkey in 1923–1924. The imprint of this contact is apparent in the phonology, morphology, lexicon and syntax

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of Cappadocian. Nevertheless, the exact impact varies among the different subdialects according to the nature and duration of the contact conditions (cf. Dawkins 1916; Janse 2002; 2008; 2009; 2020; In Press; Karatsareas 2011).

Misti was one of the Cappadocian villages (present-day Konaklı), a homogeneous town without close contact with Muslim groups (Dawkins 1916: 19). After the forced movement of Cappadocians in 1924, the inhabitants of Misti settled in more than twenty villages and towns throughout Greece.

More specifically, Cappadocians settled either in homogeneous villages with other Cappadocian speakers or in mixed villages with other Greek dialect speakers (locals and/or refugees) or in big cities like Athens and Thessaloniki. Therefore, the Cappadocian refugees and their descendants have been in a century-old contact with different varieties of Greek, under different sociolinguistic conditions, creating several different versions of contact for the same linguistic system.

The fundamental research question is whether language contact with Standard Modern Greek (SMG) or other varieties of Modern Greek is gradually leading to the attrition of Mišótika or the creation of a new koine[2], i.e., a new variety which includes mixed features from Mišótika, SMG, and/or other Greek dialectal varieties. Moreover, we should not overlook the pressure that the Cappadocians felt from the Greek locals with whom they were in contact after the population exchange, and the severe stigma that any Turkish characteristics carried for many decades, not just in the language but in other aspects of social behaviour as well.

The arrival of migrants in Greece did not imply the end of their adventures or difficulties. On the contrary, they were faced with severe deprivation and many hardships, and even the hostility of many Greek locals. There is a lot of evidence in various sources and in the recordings of our research as well, which highlight the discrimination and negative language attitude that Cappadocians had suffered in Greece (cf. Mourelos 1982; Harakopoulos 2003; Janse 2008: 123–125; 2018: 300–301; 2020: 47–48). One of the results of this stigmatization is to be found in the linguistic system of the variety, as the Cappadocians were being propelled to conceal the use of their dialect in order to assimilate to the new social and linguistic environment.

As far as the vowel system of the Mišótika dialect is concerned, we have to point out that before the population exchange, the Cappadocian vowel system, including

[2] The koineization process results in the creation of a new variety, under the activation of three different linguistic mechanisms, i.e., leveling, simplification and reallocation (cf., e.g., Trudgill 1986; Hinskens 1992).

the dialect of Misti, consisted of eight vowels, aligning it with the vowel system of Turkish (Dawkins 1916: 67–68)[3].

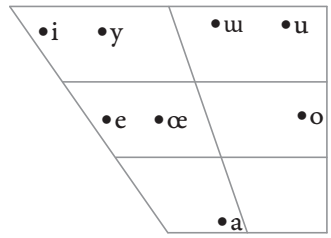

Figure 1: The pre-1924 Cappadocian vowel system

More specifically, with the exception of the vowels /i, e, a, o, u/ which existed in other Greek varieties too, the /y, œ, ɯ/ used to appear mainly in Turkish loanwords (Dawkins 1916; Janse 2009; In Press), such as [ty'tyn] < Turkish *tütün* 'tobacco', [mɯ'sɯr] < Turkish *mısır* 'corn', whereas their presence in Greek words was rare, e.g. *skiliu* 'dog.GEN.SG' > [ʃci'ʎu] > [ʃcy'ʎy], *tutut* 'hers/his.DEM.3SG.GEN.SG' [tu'tut] > [ty'tyt], *ikusen* 's/he heard' ['ikusen] > ['iksen] > ['yksen] (Janse 2009: 40f; In Press: §6.1.1)[4].

Hence, the objective of our research is to document the changes that the vowel system of contemporary Mišótika has undergone as evidenced in the speech of the second-generation Cappadocian descendants, and compared to the older system, which Cappadocians used before their settlement in Greece in the 1920s.

3. Data and methodology

The present study is an acoustic analysis of the vowels of contemporary Mišótika based on recordings of spontaneous speech of elderly native speakers (male and female), who live in the Cappadocian community of Mandra, situated 14 km from

[3] Dawkins conducted fieldwork in Cappadocia in the years 1909–1911 and is our only source for pre-1924 Mišótika.

[4] The very scanty evidence does not allow any speculations about the exact conditions under which [i] or [u] could change to [y] in certain environments.

the city of Larissa (administrative region of Thessaly, prefecture of Larissa). Mandra is a mixed village where the community is made up of descendants of refugees from Misti and the locals who use the dialectal variety of Larissa.

Moreover, as our informants narrated, the social organisation of the village prescribed different roles for men and women. Particularly, women were in charge of caring for their household and children and their network was limited to contact with the neighbourhood, mainly with women of Misti origin. As a consequence, the women constituted a stable, low-contact closed community, and they used to speak exclusively Mišótika instead of Modern Greek in interactions with speakers of the same background while adjusting their speech in contact with locals.

By contrast, men had greater mobility. Most of them often visited other villages and nearby cities, such as Larissa, due to their professional activities. As a result, they were forced to accommodate to the various linguistic environments of other varieties and the contact with SMG was clearly more pronounced as well. Furthermore, they were more socially active as they were busy with political matters and the organization of the local associations.

In planning our fieldwork and data collection, we also had to take account of the Cappadocian community background and the aspect of dialect stigmatization. Upon this basis, we opted for an ethnographic approach to counter the risk of the Observer's Paradox (Labov 1972). Nevertheless, we maintain that the Observer's Paradox is triggered not merely by the presence of the recorder and the microphone, but also by the wider communicative setup of the recording and lack of genuine social bonds between the participants and the fieldworker (Papazachariou 2006). For this reason, we trained a native male speaker of Mišótika, a core member of the speech community, to act as our main fieldworker. More specifically, the speakers recorded were members of his family as well as people from his inner circle. By doing so, we managed to mitigate the impact of the alien presence, to create a friendly and daily casual communicative situation and thus to record natural dialectal speech.

Ten elderly speakers (age range 70–84) of Mišótika were examined: five women and five men residents of Mandra. The participants were selected following ethnographic criteria. All of them were born in Greece and are second-generation speakers of Mišótika. The Mišótika dialect constitutes their first language and the dominant one in their present-day linguistic repertoires, as they had been exposed exclusively to the dialect spoken by their parents and grandparents until they started going to school where they had to accommodate to the use of SMG. Furthermore, we only

selected native speakers who had spent their entire life in the village or who had not moved to a different city or country for a long period of time. Our goal was for all research participants to have been exposed to the same linguistic environment throughout their lives under equivalent conditions.

1.000 vowel tokens were collected from each informant, for a total of 10.000 tokens. The PRAAT phonetic analysis program (Boersma & Weenink 2019) was used for the transcription, annotation and formant analysis of the data. The data was segmented manually and the formants were measured at the midpoint of each vowel. Subsequently, the results of the formant analysis were normalized and represented, following the Watt and Fabricius normalization method (Watt & Fabricius 2002)[5], with the help of Visible Vowels, a web application for the analysis, normalization and visualization of acoustic vowel measurements (Heeringa & Van de Velde 2018).

Finally, separate repeated-measures MANOVA tests were conducted for each vowel to compare the effect of gender on the formant frequency measures (normalized F1 and F2 values) of each vowel, in order to evaluate the differences between men and women.

4. Results

In this section, we present the results provided by the measurements of the vowels of female and male speakers of Mišótika from Mandra and discuss their distribution in the vowel spectrum. The analysis of the speech of women and men highlighted the distribution of nine vowels according to the F1 and F2 values, the eight vowels that appeared in the pre-1924 Cappadocian system (Dawkins 1916), as well as the vowel [æ], which does not exist either in SMG or in the older Cappadocian system, but is now prominently present in the vowel space of Mišótika. Although the [æ] sound is observed in our data set, its phonological status was unclear at that moment. We will argue below that it functions as a variant of /e/ in the Mišótika system, showing the specific phonological/phonetic contexts that this vowel appears in.

[5] The normalization results in the reduction of the individual differences related to the physiological articulation system of every speaker, while at the same time the systematic differences between the vowel systems of the informants are retained.

We have to mention that when we refer to the vowel system in the present analysis, we mean the phonetic realizations of the sounds in the system and not phonological units. Therefore, all detected sounds are displayed in the phonetic charts in order their distribution in the vowel spectrum to be captured.

4.1. The speakers from Mandra

As the two charts show in Figure 2[6], there are some gender differences. More specifically, we can discern differences in the distribution of the five vowels [i, e, a, o, u], i.e., the vowels that also exist in SMG, as well as differences in the distribution of the three [y, œ, ɯ] vowels borrowed from Turkish and the vowel [æ].

It seems that the vowels form a smaller vowel space in the speech of men than that of women, due to the less low realization of [a] and [æ], and the less back realization of [u] and [o] (see Figure 2 and Table 1).

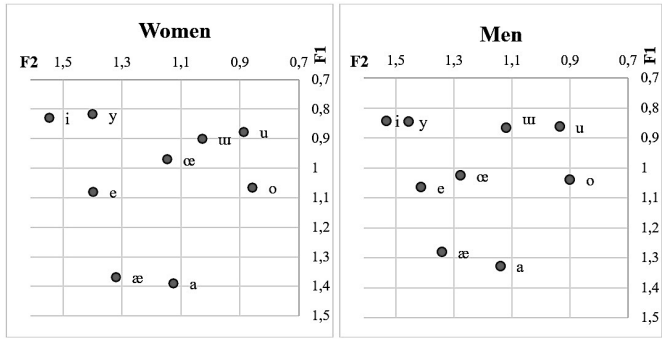

Figure 2: Vowel distribution in Mandra, split up by gender[7]

[6] The vertical axis refers to the normalized F1 values, which are the result of Watt & Fabricius algorithm: F1/(SxF1). Similarly, the horizontal axis refers to the normalized F2 values, which are derived by the algorithm: F2/(SxF2).

[7] Some of the vowels in the charts may look similar. Nevertheless, they are distinct sounds based on the position of the lips, as for example, [y] is a round vowel while [i] or [e] are not. Furthermore, we have to mention that the shift of some of these vowels is due to the fact that the front vowels in SMG are not round, in contrast to the vowel [y] of Turkish origin, while the back vowels are round in SMG, in contrast to [ɯ] respectively.

The [y, œ, ɯ] old Cappadocian vowels have a low frequency of appearance in our data (see Tables 1 and 2). This is due to the fact that their distribution in Greek-origin words is rare. These vowels occur mainly in words of Turkish origin, several of which have disappeared and been replaced by Modern Greek lexemes. At the same time, it was observed that in the words in which the vowels [y, œ, ɯ] are still used, they are sometimes replaced by their Greek equivalents. To determine the lexical items in which the vowels could appear, we relied on the corpus of words in which Dawkins (1916) and other later scholars (e.g., Costakis 1977; 1991; Kotsanidis 2006; Fates 2012) had been attested their occurrence. Therefore, the proportion of use of the [y, œ, ɯ, æ] vowels was calculated according to the instances that the possible lexical items were realized by the research participants (see Table 2).

	Women			Men		
Vowels	**N**	**F1/S(F1)**	**F2/S(F2)**	**N**	**F1/S(F1)**	**F2/S(F2)**
i	1058	0,831	1,546	1029	0,844	1,531
e	528	1,081	1,396	620	1,065	1,412
a	1496	1,39	1,124	1687	1,328	1,139
o	517	1,066	0,856	563	1,04	0,899
u	440	0,878	0,886	467	0,863	0,935
æ	228	1,369	1,319	144	1,282	1,34
ɯ	99	0,901	1,027	45	0,867	1,118
y	55	0,818	1,398	17	0,846	1,455
œ	15	0,971	1,146	4	1,026	1,276

Table 1: The normalized F1 & F2 values, split up by gender

Vowels	**Women**	**Men**
[y]	47 % (55/118)	17 % (17/98)
[œ]	52 % (15/29)	12 % (4/32)
[ɯ]	73 % (99/136)	37 % (45/121)
[æ]	91 % (228/251)	77 % (144/186)

Table 2: Frequency distribution of [y, œ, ɯ, æ]

In particular, [œ] was produced fifteen times by females while it was realized only four times by males (see Table 2). Its use in the entire number of instances is 52 % (15 times out of 29) in the speech of women, in contrast to the lower rate of 12 % in the speech of men, as it was realized only 4 times out of the 32 possible lexical incidences. At the same time, its pronunciation is different between the two genders, as it is realized in a more front and less high position in the speech of males.

The vowel [y] also occurs less frequently in the speech of men than of women. In comparison with the 55 tokens (n = 118) we found for female speakers, we have only 17 tokens (n = 98) for male speakers. Its relative frequency is higher in female (47 %) than in male speakers (17 %) as well. This is due to the fact that this [y] sound is replaced by a Greek counterpart more often in the speech of men than of women. As for its distribution, we notice that it is realized in a high position in both charts but closer to the vowel [i] in the male speakers' speech.

The vowel [ɯ] seems to appear more frequently, albeit in low percentages in relation to the vowels [i, e, a, o, u], as it was detected in 99 tokens in the speech of females and in 45 tokens in the speech of males respectively. Moreover, the instances of [ɯ] in the recordings of women have a 73 % score (99 times out of 136) as far as the lexical incidence is concerned and a 37 % score (45 times out of 121) in the recordings of men, which indicates that the vowel [ɯ] has higher usage rates than the other two old Cappadocian vowels, [y] and [œ]. As for its distribution, it seems that it is realized as a high vowel, but in a less back position (like the vowels [u] and [o]) in the speech of men in comparison with women.

What is particularly interesting is the distribution of the vowel [æ], which occurs in words of both Greek and Turkish origin. This vowel was found in 228 of 251 tokens (91 %) in female speech and in 144 of 186 tokens (77 %) in male speech. Based on the charts, we observe that [æ] is realized in a front and really low position by the female informants. Conversely, in the speech of men, it is realized in a less low position as opposed to its realization by women. Although this vowel also has a low frequency in comparison with the [i, e, a, o, u] vowels that also exist in SMG, it is differentiated from the other three [y, œ, ɯ] vowels, as it is not detected in the older Cappadocian vowel system and it seems to be a new sound (for more information about the status of [æ] vowel in present-day Mišótika see Vassalou et al. 2017; 2019; 2021).

Overall, the results of the present investigation demonstrate a frequency difference between the vowels that exist in SMG and the vowels that do not. The vowels [i, e, a, o, u] outnumber the other four vowels [æ, y, œ, ɯ] significantly, as we can observe in the frequency distributions in Tables 1 and 2.

5. Discussion

The old Cappadocian vowels [y, œ, ɯ] have a low frequency of appearance in our data in comparison with the vowels [i, e, a, o, u] that also exist in SMG. These vowels occur mainly in Turkish loanwords, several of which have disappeared and been replaced by Greek lexemes. At the same time, we studied the lexical items in which the [y, œ, ɯ, æ] vowels could appear, based on the words that had been detected by Dawkins (1916) and other scholars (e.g., Costakis 1977; 1991; Kotsanidis 2006; Fates 2012). Our results show that in the words in which the vowels [y, œ, ɯ] are still used, they are sometimes replaced by their Greek equivalents. On the other hand, the vowel [æ] is detected in words of both Greek and Turkish origin and it seems to function as a variant of /e/ in the system of the dialect.

To summarize the spectral distribution of the vowels of Mišótika, it is essential to discuss each case individually. Firstly, we have found that the high front rounded vowel [y] seems to be in the process of extinction, as it presents low percentages of appearance. It was realized more times in the speech of women (i.e., 47 % rate of use), while it is eliminated in males' speech (i.e., 17 % rate of use). At the same time, it was found that [y] alternates with [i] or [u] in the remaining cases.

(1) [my'syr] or [mi'sir] < Turkish *mısır* 'turkey'

(2) [ty'tyn] or [tu'tun] < Turkish *tütün* 'tobacco'

The mid front rounded vowel [œ] also seems to be in the process of extinction, as it was produced 15 times (n = 29) at a rate of 52 % by women, but only 4 times (n = 32) at a rate of 12 % by men. Overall, in 19 out of 61 items [œ] shows up; the 42 other are realized as the Greek counterpart [o].

(3) [tšœ'žme] or [tšo'žme] < Turkish *çeşme* 'tap'

(4) ['šœmŋa] or ['šomŋa] < Medieval Greek *δισωμία* 'shoulders'

The appearance of the high back unrounded vowel [ɯ] is limited to words of Turkish origin. It seems that the words that contain the variant [ɯ] have a relatively higher frequency, in comparison with words that contain the two other vowels of Turkish origin [y] and [œ]. In the remaining possible realization instances, the vowel [ɯ] is replaced by the Greek counterpart [u].

(5) [tɯ'ndɯr] or [tu'ndur] < Turkish *tandur* 'clay oven'

(6) [pa'mbɯr] or [pa'mbur] < Turkish *vapur*, dialectal *papur* 'steamer'

What may be inferred from the above findings is that the realization of the vowels [y, œ, ɯ] of Turkish origin is often optional, and it seems that they have been assimilated to [u], [i] or [o] respectively, because of the language contact with SMG and/or the dialectal variety of Larissa in Mandra.

However, the females produced higher percentages of the variant [ɯ] than male speakers. More specifically, its use in the entire number of instances is 73 % in the speech of women and 37 % in men. These numbers show that the vowel [ɯ] is another case of reduced usage of the old Cappadocian vowels in the speech of males as well. Moreover, [ɯ] is realized as a high vowel, but it is less back in the speech of men than women (see Figure 2). This differentiation is also reinforced by the results of the statistical analysis, as for that vowel, the repeated measures MANOVA test revealed significant difference between the genders ($F(1, 228) = 12.320$, $p = 0.000$, $\eta^2 = 0.051$). The shift of the vowel [ɯ] is definitely due to the fact that the back vowels in SMG are rounded and not unrounded, as [ɯ].

On the other hand, our data shows that the low front unrounded vowel [æ] presents a different pattern. First of all, it is not recognized as any of the older Cappadocian vowels. Also, it seems to appear systematically in the speech of all speakers under investigation and more frequently than any of the other three Cappadocian vowels (i.e., in 372 out of 437 tokens).

Moreover, when we studied the segmental and metrical environments (stressed or unstressed, ultimate or other syllables, di- or polysyllabic words, etc.) in which the vowel [æ] occurs, we noticed that it is present in words of both Greek and Turkish origin and appears in specific metrical contexts, mostly as the stressed vowel of an iambic foot in disyllabic words. Sometimes it is also found in the unstressed syllable of an iambic foot, instead of /e/, but with the precondition that the same vowel [æ] appears in the stressed syllable of the same foot as well.

(7) [de'ræ] or [dæ'ræ] < Medieval Greek *εδάρε* 'now'

(8) [me'sæl] or [mæ'sæl] < Turkish *masal* 'fairytale'

It seems that its realization in the unstressed position is optional, and only in the metrical environment described. Therefore, the variant [æ] is assumed to be an additional part in the vowel system, i.e., as a variant of /e/ in particular phonological/

phonetic contexts. The above allophonic function of [æ], as well as its systematic appearance in the vowel inventory of both genders, reinforces the conclusion that the vowel has a place in the vowel system of Mišótika[8]. Furthermore, it is likely that the constraint of the realization of this vowel in particular metrical environments will be the reason behind its low percentage rates.

Looking at the distribution of [æ], it seems that it is realized in different positions in the vowel spaces of men and women, since women realize the vowel [æ] in a front and low position, while men in a higher position closer to [e]. This is confirmed by the repeated-measures MANOVA tests ($F(1, 422) = 21{,}034$, $p = 0.000$, $\eta^2 = 0.015$).

Using the framework of dialect contact, we can observe and interpret the differences between present-day Mišótika and the older system described by Dawkins a century ago. On the one hand, the vowels [y, œ, ɯ], which occur mainly in words of Turkish origin, have been stigmatized as Turkish variants and are in the process of extinction due to mechanisms of levelling towards a new koine, i.e., a new variety which includes mixed features from Mišótika, SMG and/or the dialectal variety of Larissa, as Mišótika of Mandra has been in contact with Modern Greek and the dialectal variety of Larissa since the population exchange of the 1920s. There are a lot of testimonies in various sources (see section 2) indicating the negative language attitude of the Greek locals to Cappadocians due to the Turkish characteristics of their spoken dialect. As a consequence, the low frequency of the three old Cappadocian vowels may be the result of the Cappadocians' attempts to assimilate to the Greek linguistic environment. On the other hand, the vowel [æ] seems to have survived from the levelling process and to have been reallocated, evolving a new sociolinguistic function in the new dialect, as a strong indicator of the Mišótika identity. The above conclusions are reinforced by the fact that similar findings have been detected in the speech of Mišótika speakers from other Cappadocian communities in Northern Greece (see Vassalou et al. 2017; 2019; 2021).

As regards the other five vowels of the Mišótika vowel system (i.e., [i, e, a, o, u], which also exist in SMG), comparing the vowel spectra of women and men (see Figure 3), we could argue that the front vowels [i] and [e] are realized almost in a similar position, although men realize the vowel [e] in a higher position than women.

[8] For more information about the origin of [æ] vowel and its adoption by the speakers of Mišótika see Vassalou et al. (2021).

On the other hand, the back vowels [u] and [o] present a different distribution in the vowel space of men, as they are realized in a less back position, in contrast to the vowel spectrum of women. The repeated measures MANOVA tests show a significant effect of gender for [u] ($F(1, 907) = 40.324$, $p = 0.000$, $\eta^2 = 0.013$) and [o] ($F(1, 1080) = 25.947$, $p = 0.000$, $\eta^2 = 0.008$).

For the vowel [a] significant effects of gender ($F(1, 3174) = 137.579$, $p = 0.000$, $\eta^2 = 0.014$) are found. In particular, comparing the vowel spectra (see Figure 3), we observe that men realize the vowel [a] in a higher position than women (like the vowel [æ] and [e]). It seems that the vowel spectrum of men occupies a smaller vowel space than that of women.

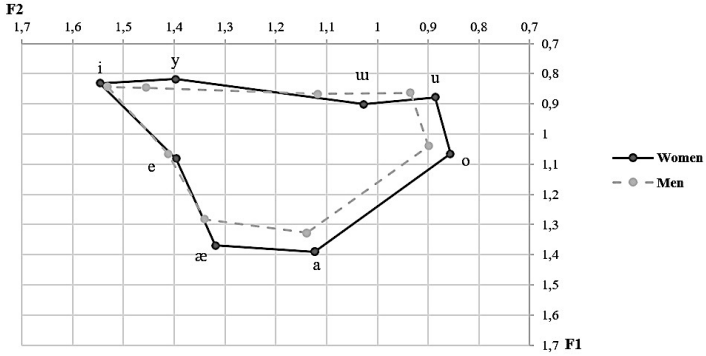

Figure 3: Mean vowel space areas for female and male speakers[9]

Taking into consideration the statistical results of repeated-measures MANOVA tests, gender seems to be an influencing sociolinguistic parameter, as its effect is significant for all vowels, except [i] and [e]. The differences between the speech of men and women can be interpreted as a result of different stages of a koineization process of these two gender groups, as male speakers are one step ahead in the linguistic change. This is reinforced by the fact that in men's speech, the mid front rounded [œ] and the high front rounded [y] is almost eliminated, and the high back unrounded [ɯ] is reduced in frequency. In contrast, in women's speech, [œ] is still produced, albeit rarely, and [y] and [ɯ] are attested more frequently.

[9] The vowel [œ] is omitted from this chart because it is realized in a more central position in the vowel spectrum.

A very reasonable explanation of the different stages of the levelling process in the two genders could be the effect of the contact situations existing in the village in combination with the different social roles of the two genders. As already mentioned, Mandra is a mixed speech community, where descendants of refugees from Misti live together with locals who speak the dialectal variety of Larissa.

At the same time, men have greater mobility than women due to their social and professional activities. In particular, as it was noted during the ethnographic study, the profession of the majority of men requires daily social contact and mobility in the nearby city of Larissa or even other villages and as a matter of fact, the contact with SMG or other varieties of Greek was clearly more pronounced.

On the other hand, according to the informants' narratives, the women constituted a low-contact and closed group. The majority of them had never been employed as were occupied with the care of the household and their children in their daily lives. As a result, they did not have great mobility, especially in the earlier days, and were more closely knit with their family and the neighbourhood.

We strongly believe that the combination of the above social parameters can lead to the conclusion that men are ahead in the process of linguistic change to koineization, as a result of dialect contact, whereas women seem to preserve their dialectal features due to fewer opportunities of contact.

6. Conclusion

Wrapping up the previous discussion, we have shown that the vowel system of the speakers from the Cappadocian community of Mandra diverges from the older system described by Dawkins (1916) a century ago. In particular, the speech analysis provides evidence for the existence of the previously unrecorded [+front, -high, -round] vowel [æ], which has appeared in the vowel system of Mišótika. At the same time, the three old Cappadocian vowels [y], [œ] and [ɯ], which do not exist in SMG, are in different stages of reduction and possible loss.

Furthermore, there is evidence that gender seems to be a significant sociolinguistic parameter influencing the distribution of the vowels in the vowel spectrum. To conclude, the variety used by the present-day native speakers from Mandra presents essential changes from the variety spoken at the time of the migration of Cappadocians in Greece (1924), with changes that indicate long-term

accommodation and levelling. At the same time, the male speakers seem to be one step ahead in the process of linguistic change in comparison with the women.

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