A TYPOLOGICAL AND COMPARATIVE ACCOUNT OF CL AND CC CLUSTERS IN GREEK DIALECTS

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Ο σχηματισμός συμφωνικών συμπλεγμάτων συνιστά ένα από τα πιο ενδιαφέροντα θέματα της φωνολογίας. Σύμφωνα με μια από τις θεμελιώδεις θεωρητικές θέσεις που διέπουν το σχηματισμό συμπλεγμάτων, η απόσταση των τεμαχίων-μελών του συμπλέγματος πάνω στην κλίμακα ηχητικότητας εξασφαλίζει διάφορα επίπεδα δομικής συνοχής του συμπλέγματος. Με άλλα λόγια, όσο μεγαλύτερη είναι η απόσταση μεταξύ των μελών του συμπλέγματος, τόσο πιο καλοσχηματισμένο αλλά δομικά λιγότερο συνεκτικό είναι το σύμπλεγμα. Στόχος της παρούσας εργασίας είναι να καταδείξει ότι η απόσταση στην κλίμακα ηχητικότητας συνιστά αναγκαίο αλλά όχι επαρκή παράγοντα αξιολόγησης της δομικής συνοχής των συμπλεγμάτων. Υποστηρίζουμε ότι ο βαθμός δομικής συνοχής ενός συμπλέγματος καθορίζεται από πιο 'λεπτές' υποκλίμακες της κλίμακας ηχητικότητας που αφορούν τον τόπο και τον τρόπο άρθρωσης χωριστά. Με δεδομένες αυτές τις κλίμακες τόπου και τρόπου άρθρωσης, τα συμπλέγματα χαρακτηρίζονται ως τέλεια, αποδεκτά ή μη αποδεκτά ανάλογα με το βαθμό στον οποίο ικανοποιούν *και τις δύο* κλίμακες. Επιπλέον, δείχνουμε ότι οι διάφορες διαλεκτικές ποικιλίες της Ελληνικής είναι πιο 'ευέλικτες' ως προς τα σχηματισμό συμπλεγμάτων σε σχέση με την Κοινή Νέα Ελληνική. Αυτός είναι ο βασικός λόγος για τον οποίο η νόρμα χαρακτηρίζεται από ένα υποσύνολο αποδεκτών σχηματισμών συμπλεγμάτων σε σχέση με τις διαλέκτους.

Keywords: consonant clusters, phonological representation, coherence, sonority scale, place hierarchy, manner hierarchy.

1. Introduction

Cluster formation is one of the most interesting topics of various aspects of a language's phonology. This is attested in the variety of cluster formation in language acquisition (L1), language learning (L2), as well as the dialectal variants of the norm. The fundamental claim governing cluster formation is that the bigger the distance between the members of a cluster on the sonority scale

(SS) is, the better structured the cluster is (Clements 1984, 1988). For example, a cluster consisted of [obstruent + liquid] (hereafter CL) is a better-formed cluster compared to an [obstruent + obstruent] cluster (hereafter CC) because the distance between C and L is bigger than that between C and C. Consequently, a better-formed cluster has more chances to remain intact in its surface/ phonetic realization compared to a less well-formed one.

In recent work in L1, it has been claimed that sonority distance leads to 'clarity' in perception which, in turn, facilitates production (Tzakosta 2007). Therefore, CL clusters, rather than CC sequences, constitute unmarked consonantal sequences and emerge first in different aspects of language learning cross-linguistically. Tzakosta (2007), for child speech, has proposed two different representations for CL and CC sequences. These are depicted in figures 1 and 2, respectively. Figure 1 illustrates that CL clusters are less coherent than CC ones, given that the upper end points of the segmental lines in CL clusters do not coincide at the level of the Onset node. Coincidence of the segmental lines indicates internal cluster coherence. It is important to note that, as Tzakosta claims, the parallel lines of the CL representation mirror a phonetic/ psycholinguistic rather than a phonological effect.

Fig. 1

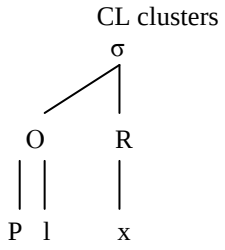
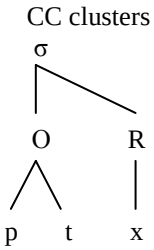


Fig. 2



The fundamental assumption of this paper is that different consonantal sequences display different degrees of internal coherence. Different clusters exhibit variable output forms due to their different phonological representations. The basic hypothesis underlying our claim is that cluster coherence is determined by both manner and place of articulation (hereafter MoA and POA, respectively). Therefore, MoA and PoA need to be evaluated in parallel but also independently. This implies that two distinct scales signaling MoA and PoA need to be taken into consideration. These two scales heavily rely on the classical version of the Sonority Sequencing Principle (SSP, Steriade 1982) as well as the fixed place hierarchy proposed by Prince and Smolensky (1993), respectively. In the present study we, first, discuss the surface realization of CL and CC clusters in Greek dialects, then, we investigate whether clusters have the same chances for survival across dialects, third, we evaluate the role of place and manner of articulation in

cluster formation and, finally, we make a typological account of CL and CC clusters. /s/ clusters are excluded from the present study because of the special status of /s/ in the literature (cf. Tzakosta & Vis 2007, for detailed discussion).

2. The problem

As already mentioned, the SS governs cluster formation in that cluster well-formedness is defined by the bigger possible distance between cluster members. However, both dimensions of MoA and PoA are fused in the classical version of the SS (adapted from Selkirk 1984 and Steriade 1982) shown in schema 1. Put differently, the classical SS refers to aspects of manner, on the one hand, i.e. stops vs. fricatives vs. affricates, and aspects of place of articulation, namely nasals, liquids, glides and vowels.[1]

Schema 1 - classical sonority scale

S	**F/Sib**	**Affr**	**N**	**L**	**G**	**V**
1	**2**	**3**	**4**	**5**	**6**	**7**

The immediate outcome of the SS in its current form is that clusters are mainly evaluated on the basis of the distance among cluster members without taking place and/ or manner into consideration. Consequently, we cannot make an in depth assessment of the degree of cluster perfection or cluster well-formedness. To give an example, we accept that **CL** and **C**(onsonant)**N**(asal) clusters, such as /pl/ and /fn/, respectively, are both well-formed clusters in Greek; however, /pl/ is better formed than /fn/, given the bigger sonority distance between /p/ and /l/ compared to /f/ and /n/. The problem arises in clusters with smaller sonority distance. To be more specific, the distance between the members of the clusters /tf/ and /kθ/ is exactly the same, 1, given that the initial segment of both clusters is a stop and the second is a fricative. Therefore, both clusters should be appointed the same degree of cluster well-formedness. Nonetheless, /tf/ is unacceptable in Greek, while /kθ/ is acceptable. What makes /tf/ unacceptable if sonority distance is satisfied? This observation led us to the assumptions that the classical SS should be divided in two distinct scales, one designating MoA and one designating PoA.

In sequence to the above, the satisfaction of these scales leads to certain degrees of well-formedness. More specifically, if clusters *satisfy* the scales of *both* manner and place, they comprise perfect clusters. If they *respect* the

[1] Because of the controversial theoretical claims regarding the status of nasals and liquids at the dimension of manner, we evaluate such segments only on the dimension of place of articulation.

sonority of *either* place or manner, they form *acceptable clusters*. Finally, if clusters *do not respect* the scales of *both* place and manner, they constitute *'wrong' i.e. non-acceptable* clusters. In other words, perfection in cluster formation is an effect of gradient satisfaction of the MoA and PoA scales. Therefore, in the example just mentioned, /kθ/ is grammatical because both the place and manner scales are satisfied contra to /tf/ in which no scale is satisfied. The hypothesis related to the above claims is that clusters non-existing in the standard language may emerge in dialectal variants as long as they are theoretically acceptable. Wrong clusters are not expected to emerge.

3. The linguistic evidence

The theoretical claims which will be discussed in section 4 are supported by data from the major Greek dialectal zones, namely the dialects of Northern Greece (e.g. Epirus, Meleniko, Lesvos, Pontos, Thassos, Corfu, Thessalia, Kozani, Trikala, Samothraki, Thessaloniki) and the dialects of Southern Greece (e.g. Cyprus, Crete, Dodekanese, Ikaria). Some representative data of the norm are provided in (1) below.[2] In this study, we do not consider **CJ** clusters because we do not reflect on such clusters as real clusters given that [j] is the product of vowel raising. The data in (1) demonstrate the flexibility of Greek cluster phonotactics given that many possible combinations are allowed. Therefore, except for well-formed CL and CR sequences, [voiceless stop + voiceless stop], [voiceless stop + voiceless/ voiced fricative], [voiced fricative + voiced fricative], [voiceless fricative + voiceless fricative], [voiceless fricative + voiceless stop] clusters are allowed, as shown in (1c). Interestingly, [voiced stop + voiced stop], [voiced obstruent + voiceless obstruent] and [voiceless obstruent + voiced obstruent] clusters are not attested in Greek, except for CN clusters.

(1) a. **CL** => a**pl**ós, **γl**áros,
b. **CR** => á**kr**i, é**θr**ios
c. **CC** => a**kt**í, o**pt**ikós, té**fx**os, **xθ**és, **fθ**inós, **vγ**ázo, a**vγ**ó, é**kθ**esi, é**kδ**osi, pé**fk**o, **xt**ízo
d. **CJ** => **δj**o, á**δj**os
e. **CN** => a**km**í, é**θn**os
f. **NN** => a**mn**isía

In (2) and (3) we provide representative data of cluster formation regarding the dimensions of MoA and PoA, respectively. Due to space limitations we do not

[2] Throughout the paper, **C** stands for an obstruent, i.e. a voiceless or voiced stop or fricative, **L** represents a liquid, **R** stands for a rhotic, **J** represents a glide and **N** is a nasal. **S** stands for stops and **F** for fricative segments.

present data from the CL category. Because CL clusters are perfectly well-formed, they are allowed in standard Greek as well as its variants.

(2) Dialectal data - MoA

a. **FS:** /ku.fá.**θ**i.**c**e/ → [kfá.**θc**e] 'become deaf – 3SG.PAST' (Thessalia, Tzartzanos 1909)

b. **SF:** /a.**p**i.**θ**á.δa/ → [a.**pθ**á.δa] 'Apithada - proper name' (Plomari, Giannoulellis 1983)

c. **FF:** [**θl**í.vo.me] → [**fθ**í.vo.me] 'be sad-1SG.PRES.' (Pontos, Oikonomides 1958)

d. **SS:** /a.ľó.**t**i.**k**os/ → [a.ľó.**tk**us] 'different-ADJ.MASC.NOM.SG.'

e. **SS:** /a.po.**k**á.**t**o/ → [a.**pk**á.tus] 'underneath-ADV.' (Meleniko, Adriotes 1989)

(3) Dialectal data - PoA[3]

a. **LAB+VEL:** /**p**u.**k**á.mi.so/ → [**pk**á.msu] 'shirt – NEUT.NOM.SG.' (Meleniko, Andriotes 1989)

b. **LAB+COR:** /**p**i.**θ**a.mí/ → [**pθ**a.mí] 'span-FEM.NOM.SG.' (Thessalia, Tzartzanos 1909)

c. **COR+VEL:** /po.**d**i.**k**ós/ → [pu.**tk**ós] 'mouse-MASC.NOM.SG.'

d. **COR+VEL:** /**t**i.γá.ni/ → [**tγ**án] 'frying pan-NEUTR.NOM.SG.' (Samothraki, Katsanis 1996)

e. **COR+LAB:** /fí.**t**e.**m**a/ → [fí.**tm**a] 'planting-NEUT.NOM.SG.'

f. **COR+LAB:** /pa.**t**i.**m**a.sjá/ → [pa.**tm**a.súδ] 'footmark-FEM.NOM.SG.' (Thassos, Tombaidis 1967)

g. **VEL+LAB:** /**k**u.**f**ós/ → [**kf**ós] 'deaf-ADJ.MASC.NOM.SG.' (Thessalia, Tzartzanos 1909)

h. **VEL+COR:** /tra.γu.**δ**á.i/ → [tra.**γδ**á.i] 'sing-3SG.PRES.' (Thessalia, Tzartzanos 1909)

i. **VEL+COR:** /s**k**ou.**d**ó/ → [**gd**ó] 'push-1SG.PRES.' (Samothraki, Katsanis 1996)

4. Previous analyses and the present proposal

There are very few studies on the qualitative synthesis of the possible cluster types. Papademetre & Roga (1983) provide a first analysis of three-member clusters. They assign fricatives and stops to the same point on the SS. They claim that word-initial /pst/ and /kst/ clusters do not violate the SS, even though the argumentation for such a claim is not perfectly clear. A claim related to our hypotheses is that consonantal combinations disallowed in the standard language

[3] **LAB** stands for labials, **COR** for coronals and **VEL** for velars.

but allowed in the dialect incur a dialectal constraint violation. Combinations disallowed both in the standard language and the dialects incur a general violation. Papademetre & Roga (1993) avoid assigning the position of /s/ on the SS because /s/ appears in any position in clusters of the norm and its dialects.

Variable dialectal data and theoretical gaps in the evaluation of clusters led us to our current assumption that two distinct scales signaling MoA and PoA are needed in the evaluation of clusters. Depending on the degree of satisfaction of these two scales, clusters are perfect, acceptable or non-acceptable. Figures 3 and 4 depict the refined scales of MoA and PoA, respectively. Both scales are satisfied as long as the selection of cluster members is rightward. Cluster well-formedness also depends on distance; the bigger the distance between cluster members the better-formed the cluster. As a result, /kl/ is a better cluster than /xl/ on the manner scale because the distance of the members of /kl/ is 4 whereas the distance is 3 for /xl/. With respect to the place scale in figure 4, /kt/ is a better cluster compared to /pt/. The distance of the members of /kt/ is 2, while for /pt/ the distance is 1.

Fig. 3 - Sonority Scale 1 - MoA

S	F(/Sib)	Affr	N	L	G	V
1	2	3	4	5	6	7

Fig 4 - Sonority Scale 2 - PoA

Velars	Labials	Coronals
1	2	3

Consonant sequences having some distance and respecting rightward selection of the cluster members form acceptable clusters. However, acceptability is gradient in the sense that clusters are perfect, acceptable or non-acceptable. Moreover, as we will demonstrate in the remainder of the discussion, not all clusters are, for instance, perfect to the same extent. Some perfect clusters are ‘more perfect’ compared to others. Again, this claim lies on the assumption that cluster well-formedness is three-dimensional; It depends on the degree of satisfaction of the manner and place scales and the distance existing among cluster members.

Perfection and (non-) acceptability in cluster formation are illustrated in tables 1-3. More specifically, tables 1 and 2 illustrate the sets of perfect, acceptable and non-acceptable at the level of MoA and PoA, respectively. In both tables, we observe that clusters whose members are selected clockwise, that is, from left to right, with a relative distance holding among them are perfect. For example, STOP + L, FRIC + L, STOP + FRIC are perfect clusters at the level of

manner of articulation while LAB + COR, VEL + LAB and VEL + COR are perfect clusters at the level of place of articulation. It is important to note that the relevant scales in figures 3 and 4 are vacuously satisfied when cluster members share the same PoA and MoA, respectively. As a result, STOP + STOP , FRIC + FRIC and AFFR + AFFR clusters are acceptable at the level of manner, while LAB + LAB, VEL + VEL, COR + COR clusters are acceptable at the level of place of articulation. Leftward selection of cluster members leads to the formation of non-acceptable clusters. Therefore, FRIC + STOP or FRIC + AFFRIC are non-acceptable clusters at the level of MoA, while STOP + VEL and LAB + VEL are non-acceptable at the level of PoA.

Table 1 - Gradience in cluster formation (MoA)

TYPES	PERFECT	ACCEPT	NON-ACCEPT
STOP + L	√		
FRICATIVE + L	√		
STOP + STOP		√	
FRIC + FRIC		√	
STOP + FRIC	√		
FRIC + STOP			√
STOP + AFFR	√		
AFFR + STOP			√
FRIC + AFFR	√		
AFFR + FRIC			√
AFFR + AFFR		√	

Table 2 - Gradience in cluster formation (PoA)

CLUSTER TYPES	PERFECT	ACCEPT	NON-ACCEPT
LAB + LAB		√	
LAB + COR	√		
LAB + VEL			√
COR + COR		√	
COR + LAB			√
COR + VEL			√
VEL + VEL		√	
VEL + COR	√		
VEL + LAB	√		

Table 3 - Grad in cluster formation (combined)

CLUSTER TYPES	STOP LAB	FRIC LAB	STOP COR	FRIC COR	STOP VEL	FRIC VEL	LIQ
STOP LAB	GEM	[pf]	[pt]	(pθ)	{pk}	[px]	(pl)
FRIC LAB	{fp}	GEM	[ft]	[fθ]	{fk}	{fx}	(fr)
STOP COR	{tp}	[tf]	GEM	[tθ]	{tk}	[tx]	(tr)
FRIC COR	{θp}	{θf}	{θt}	GEM	{θk}	{θx}	(θl)
STOP VEL	[kp]	<kf>	[kt]	<kθ>	GEM	[kx]	(kr)
FRIC VEL	[xp]	[xf]	[xt]	[xθ]	{xk}	GEM	(xl)

Table 3 combines the effects of tables 1 and 2 and displays the sets of perfect, acceptable and non-acceptable clusters. Perfect clusters clearly satisfy both scales of MoA and PoA and are indicated by the sequences in perentheses. Perfect clusters appearing in white backgrounds are clusters which emerge both in standard Greek as well as its dialects, whereas perfect clusters appearing in grey backgrounds emerge only in dialects. Perfect clusters appearing in angle brackets emerge in morpheme boundaries.

On the other hand, clusters are acceptable under three conditions: first, if they satisfy one of the two scales and vacuously satisfy the other, second, if they vacuously satisfy both scales, and, third, if they satisfy one but violate the other scale. In table 3, all acceptable clusters are written in square brackets. Those appearing in white backgrounds emerge both in standard Greek as well as its dialects; whereas acceptable clusters appearing in grey backgrounds emerge only in dialectal data. Underlined acceptable clusters appearing in white backgrounds signal clusters emerging rarely.

Finally, vacuously satisfying one of the scales of MoA or PoA and violating the other is sufficient to characterize a cluster as non-acceptable. Non-acceptable may also violate both scales. The latter are the worst among non-acceptable clusters. Non-acceptable clusters appear in brackets. Underlined non-acceptable clusters emerge in morpheme boundaries, whereas non-acceptable clusters appearing in grey backgrounds emerge in dialects.

The difference between acceptable and non-acceptable clusters is very subtle. This observation supports the claim that, not only are clusters gradient regarding the level of their acceptability, i.e. perfect, accept and non-acceptable, but gradiency also characterizes each level of acceptability. In other words, there are perfect clusters which are ‘better’ than other perfect clusters or clusters which are more acceptable than other acceptable clusters. In addition to that, there are clusters which are the worst among the non-acceptable clusters, as already mentioned. This type of gradiency is illustrated in (4), (5) and (6) for perfect, acceptable and non-acceptable clusters, respectively. (4) displays the order of perfect clusters; the leftmost cluster is the most perfect while the rightmost is the

least perfect one. It is important to remember that the most perfect cluster satisfies the place and manner scales; moreover, the distance among its members is the biggest possible, 4. The least perfect cluster, on the other hand, satisfies both scales of manner and place but the distance among its members is 1. Two of the least perfect clusters, /kθ/ and /kf/, appear in standard Greek but only in morpheme boundaries. In addition, /pθ/, the least perfect cluster, appears only in dialects. Similar hierarchies hold for acceptable and non acceptable clusters. Due to space limitations, the reader is addressed to Tzakosta (in prep.) for a more detailed discussion. Nonetheless, it is interesting to point out that two of the 'worst' clusters, /fk/ and /fx/, appear in standard Greek, though only in morpheme boundaries, as in 'ef + kolos' "easy" or 'ef + xaristos' "pleasant".

(4) Perfect Clusters

Kl, kr >> xl, xr >> pl, pr >> fl, fr >> tl, tr >> θl, θr >> kθ >> kf >> pθ

(5) Acceptable Clusters

Clusters vacuously satisfying one scale and satisfying the other (xp, ft, xt, xk, px, tx) >> Clusters vacuously satisfying both scales (pf, kx, tθ) >> Clusters satisfying one scale (kp, xf, pt, kt, fθ, xθ)

(6) Non-acceptable Clusters

Clusters vacuously satisfying one scale and violating the other (tk, fx, θf, pk, θx, fp, θt, tp) >> clusters violating both scales (fk, θp, θk)

The fact that cluster well-formedness is gradient is proved by the data in (8) in which segments are substituted for others in cluster formation In (8a), for example, /f/ is substituted for /θ/ because the distance between /f/ and /l/ is bigger than /θ/ and /l/. The same holds for (8b) and (8c). In other words, cluster acceptability is, except for the satisfaction of the scales of MoA and PoA, sponsored by the distance of the cluster members on each of the scales of manner and place.

(8) a. /θli.ve.rós/ → [fli.vi.rós] 'depressing-ADJ.MASC.NOM.SG.'
d. /vlé.po/ → [γlé.po] 'see-1SG.PRES.' (Meleniko, Andriotes 1989)
e. [θlí.vo.me] → [fθí.vo.me] 'be sad-1SG.PRES.'

(Pontos, Oikonomides 1958)

5. Conclusions

The aim of this study was to show that the emergence of certain cluster types is attributed to their well-formedness. On the basis of this claim, clusters are divided into three major categories; perfect, acceptable and non-acceptable. Clusters fall within one of these three categories depending on the degree of satisfaction of the SS in combination with the degree of satisfaction of the scales of place and manner of articulation.

Acceptable clusters are mainly CC clusters, that is, clusters consisting of obstruents. Apparently, cluster coherence, i.e. adjacency on the SS, is crucial for cluster survival. Moreover, we propose two distinct scales of MoA and PoA which evaluate consonantal sequences independently. We observed that the bigger the distance of the segments involved in cluster formation regarding the dimension of manner and place, the better-formed a clusters is. Clusters may satisfy, violate or vacuously satisfy the manner and place scales. This is how perfect, acceptable and not-acceptable clusters emerge. In addition, to the above we noticed that each level of well-formedness involves some degree of gradiency. In other words, there are more or less perfect clusters, more or less acceptable clusters, more or less non-acceptable clusters.

It appears that, although dialects are characterized by their conservatism, they are less strict in cluster formation; this is why they do not allow perfect clusters only; acceptable and, in some cases, non-acceptable clusters are well-formed. Acceptable clusters are qualitatively the most frequent patterns. This allows the prediction that acceptable clusters are the most dominant cluster types cross-linguistically. In connection to the above, clusters acceptable in theory but not attested in the data are expected to emerge in the light of more new data. Non-acceptable clusters, on the other hand, are the fewest in theory and the least attested in the empirical data. The question why non-acceptable clusters emerge in the dialectal data, though rarely, remains. We prefer to not answer this question at the moment given that we have not considered voicing or the impact of phonetics in cluster formation. This question is amenable to future research.

REFERENCES

Αλεξάκης, Ν. (2000). Παρατηρήσεις στη Φωνητική, τη Μορφολογία και τη Σύνταξη του Κερκυραϊκού ιδιώματος. *Μελέτες για την Ελληνική Γλώσσα, 25,* 19-30.

Ανδριώτης, Π. (1989). *Το γλωσσικό ιδίωμα του Μελένικου*. Θεσσαλονίκη: Δημοσιεύματα της Εταιρείας Μακεδονικών Σπουδών.

Αραβαντινού, Π. (1909). *Ηπειρώτικον Γλωσσάριον*. Αθήνα: Εκδ. Ν. Καραβία.

Γιαννουλέλλης, Γ. (1983). *Πλωμάρι Λέσβου*. Αθήνα: Εκδ. Σ.Δ. Βασιλόπουλος.

Kappa, I. (2001). An Optimality Theoretic Account of the (West)Cretan Dialect. In A. Rali, B. D. Joseph & M. Janse (Eds.) *Proceedings of the First International Conference of Modern Greek Dialects and Linguistic Theory* (pp. 105-116). University of Patras

Καραπατάκης, Κ. (1976/1979). Ραμπόζι, τσέτλες και μαντάνια, *Πρακτικά Γ΄ Συμποσίου Λαογραφίας του Βορειοελλαδικού Χώρου* (Ήπειρος-Μακεδονία-Θράκη). Θεσσαλονίκη: Ίδρυμα Μελετών Χερσονήσου του Αίμου.

Κατσάνης, Ν.Α. (1990-1991). Λεξιλόγιο Πλωμαρίου (Νομός Λέσβου). *Ελληνική Διαλεκτολογία*, (2, 27-130). Θεσσαλονίκη: Αφοι Κυριακίδη.

Κατσάνης, Ν.Α. (1996). *Το Γλωσσικό Ιδίωμα της Σαμοθράκης*. Θεσσαλονίκη.

Κατσάνης, Ν.Α. (1981). Διαλεκτικά ΙΙ: Η εξέλιξη της Φωνολογικής αντίθεσης /λ/ : /λλ/ στο ιδίωμα Δρυμού Μελισσοχωρίου και στα περιφερειακά διώματα της ελληνικής. *Μελέτες για την Ελληνική Γλώσσα, 6*, 17-50.

Κατσάνης, Ν.Α. (1983). Τελικά Σύμφωνα – Συμφωνικά Συμπλέγματα του Ιδιώματος Δρυμού: Απόπειρα Συστηματοποίησής τους. *Μελέτες για την Ελληνική Γλώσσα, 8*, 33-43.

Κοντοσόπουλος, Ν. (1997). *Θέματα Κρητικής Διαλεκτολογίας. Αναδημοσίευση μελετών*. Αθήνα: Βιβλιοεκδοτική Αναστασάκη.

Κοντοσόπουλος, Ν. (2006). *Γλωσσικός Άτλας της Κρήτης*. Ηράκλειο: Πανεπιστημιακές Εκδόσεις Κρήτης.

Μαλικούτη-Drachman, Α. (1998). Παρατηρήσεις στα Δασέα Σύμφωνα τα Αττικής. *Μελέτες για την Ελληνική Γλώσσα, 18,* 304-316.

Μαργαρίτη-Ρόγκα, Μ. (1989). Όροι Υφαντικής και Ενδυμασίας Καταφυγίου (νομός Κοζάνης). *Ελληνική Διαλεκτολογία*, (τ. 2, 173-80). Θεσσαλονίκη: Αφοι Κυριακίδη.

Μαργαρίτη-Ρόγκα, Μ. (1990-1991). Όροι Υφαντικής και Ενδυμασίας Μικρού Κεφαλόβρυσου (νομός Τρικάλων). *Ελληνική Διαλεκτολογία* (τ. *2*, 131-135). Θεσσαλονίκη: Αφοι Κυριακίδη.

Μελανοφρύδης, Π. (1987). *Η εν Πόντω Ελληνική Γλώσσα*. Θεσσαλονίκη: Αφοι Κυριακίδη.

Μηνάς, Κ. (2004). Μελέτες *Νεοελληνικής Διαλεκτολογίας*. Τυπωθήτω-Δάρδανος.

Ντίνας, Κ.Δ. (1985) Η Κώφωση-Αποβολή στα Βόρεια Νεοελληνικά Ιδιώματα (ΒΝΕΙ) και στο Κουτσοβλάχικο Ιδίωμα της Σαμαρίνας (ΚΒΣ). *Μελέτες για την Ελληνική Γλώσσα 10*. 57-66.

Οικονομίδης, Η. (1958). *Γραμματική της Ελληνικής Διαλέκτου του Πόντου. Λεξικογραφικόν Δελτίον, Παρ. 1*. Αθήνα: Ακαδημία Αθηνών.

Παντελίδου, Χ. (1929). Φωνητική των Νεοελληνικών Ιδιωμάτων Κύπρου, Δωδεκανήσου και Ικαρίας. Αναδημοσιευμένη ως παράρτημα στην *Ελληνική Διαλεκτολογία*, τ. 2. Θεσσαλονίκη: Αφοι Κυριακίδη.

Παπαδημητρίου Λ. και Μ. Μαργαρίτη-Ρόγκα. (1983). Περιορισμοί στις ιεραρχήσεις Ηχητικότητας και Απλοποίηση των Συμπλεγμάτων στις Νεοελληνικές Διαλέκτους. *Μελέτες για την Ελληνική Γλώσσα, 8*, 17-32.

Σετάτος, Μ. (1994/ 1995). Ποντιακές Ετυμολογίες. *Ελληνική Διαλεκτολογία.* Τόμος 4ος. Θεσσαλονίκη: Εκδοτικός Οίκος Αδελφών Κυριακίδη. 25-38.

Tzakosta, M. (2007). Asymmetries in /s/ Cluster Production and their Implications for Language Learning and Language Teaching. Paper presented at the *18th International Symposium of Theoretical and Applied Linguistics*. School of English: Aristotle University of Thessaloniki.

Tzakosta, M. & J. Vis. (2007) Asymmetries of Consonant Sequences in Perception and Production: Affricates vs. /s/ Clusters. Paper presented at the 18th International Symposium of Theoretical and Applied Linguistics. School of English: Aristotle University of Thessaloniki.

Tzakosta, M. (in prep.). Gradient Well-formedness in Consonant Cluster Formation: the Case of CL vs. CC Sequences. Ms. University of Crete.

Τζαρτζάνου, Α. (1909). Περί της Συγχρόνου Θεσσαλικής Διαλέκτου. Αναδημοσιευμένη ως παράρτημα στην *Ελληνική Διαλεκτολογία 1989, τ. 1.* Θεσσαλονίκη: Αφοι Κυριακίδη.

Τομπαΐδης, Δ. (1967). *Το γλωσσικό ιδίωμα της Θάσου*. Διδακτορική Διατριβή. Θεσσαλονίκη: Επιστημονική Επετηρίδα Φιλοσοφικής Σχολής.

Χατζηιωάννου, Κ. (1992/1993). Μερικές αρχαΐζουσες λέξεις της Κυπριακής αθησαύριστες στα εκδεδομένα Γλωσσάρια», *Κυπριακαί Σπουδαί, τ.* ΝΣΤ΄, 11-17.

Χατζηιωάννου, Κ. (1999). *Γραμματική της Ομιλούμενης Κυπριακής Διαλέκτου. Με Ετυμολογικό Προσάρτημα*. Λευκωσία: εκδ. Ταμασός.

Abstract

Cluster formation is of major phonological interest. According to one of the fundamental claims regarding cluster formation, distance of the cluster members on the sonority scale guarantees cluster well-formedness. In other words, the bigger the distance between cluster members on the sonority scale is, the better formed the cluster. However, we claim that cluster perfection entails a low-level cluster coherence. Our goal in this study is to highlight that sonority distance is not a sufficient factor of assessing cluster internal coherence. We claim that the degree of structural coherence is determined by more refined scales of place and manner of articulation. Clusters are characterized as perfect, acceptable and non-acceptable depending on the degree of satisfaction of *both* scales. Moreover, we demonstrate that different dialectal variants of Greek are more or less 'flexible' regarding cluster formation. It will become obvious that the norm has only a subset of acceptable clusters compared to its dialects.