

# **LANGUAGE CONTACT AND THE DEVELOPMENT OF NEGATION IN GREEK AND THE BALKANS**

Brian D. Joseph, The Ohio State University  
Department of Linguistics, Columbus, Ohio USA  
43210-1298  
joseph.1@osu.edu

## **Περίληψη**

Η πιο συνηθισμένη επίδραση μιας γλώσσας πάνω σ' άλλη γίνεται στο λεξικό, με δάνεια. Λίγο πιο σπάνια, τέτοια επίδραση βρίσκεται και στο γραμματικό επίπεδο. Η σχέση, όμως, μεταξύ λεξιλογικών δανείων και γραμματικών δανείων δεν είναι απολύτως σαφής. Εδώ εξετάζονται μερικά παραδείγματα επαφής και επίδρασής που αφορούν την άρνηση στα νέα ελληνικά και σ' άλλες βαλκανικές γλώσσες για να αποσαφηνιστούν ζητήματα και της εξέλιξης της άρνησης σ' αυτές τις γλώσσες και της φύσης της γλωσσικής επαφής πιο γενικά.

## **1. Introduction**

Contact involving different languages has long been a potent force for linguistic change in the Eastern Mediterranean, and Greek, in its several varieties, is a focal point in contact situations in this area. The study of language contact has tended to concentrate on lexical matters, with borrowing being the key issue, but as far as Greek is concerned, structural and grammatical matters have also been important to look at, due to the special relationship that Greek shows with other languages of the Balkans, as members of the so-called Balkan Sprachbund.

What is not clear is whether grammatical borrowing is different in nature from lexical borrowing; external influence on grammar, for instance, has been said to be a more difficult effect, one that does not happen all that often and occurs only under special contact conditions, whereas external influence on the lexicon seems to happen more easily, and actually need not involve any contact between real speakers, as the phenomenon of

learned borrowing from earlier stages of a languages shows.

One domain that on the one hand involves grammar and structure but at the same time often involves particular lexical items as exponents of grammatical function is negation. Negation therefore is a potentially interesting area in which to explore the relationship between lexical and grammatical borrowing, and Greek, especially in its connections with other languages of the Balkans, provides a particularly fruitful area for such exploration, since external influences seem to have played a role in the development of at least some aspects of negation in Greek and the Balkans.

In what follows, a few specific case-studies are examined with the goal of illustrating the effects of language contact on Greek negation. Moreover, this examination of contact effects goes beyond just illuminating aspects of the history of area of Greek grammar, for it provides the following additional insights:

- lexical borrowing and grammatical borrowing can be taken to be essentially the same mechanism, with grammatical effects thus really being secondary
- the effects of language contact can be pervasive, even with so highly grammatical a part of a language as negation which might otherwise be considered resistant to contact-induced change; this result is in keeping with Thomason & Kaufman 1988's claim that there are no linguistic constraints on the outcome of language contact
- contact involving negation is consistent with what is known about the nature of language contact in the Balkans — intense, close, and intimate with some bi- or multi-lingualism — from other types of borrowings that cross the boundaries of the lexical and the grammatical, especially the many intimate borrowings (e.g. conversational markers such as Greek

ⲡⲧⲉ ‘particle signifying impatience’,  
from Turkish, found also in Balkan  
Slavic).

## 2. Case Study #1—Ⲗⲉⲩ in Tsakonian

In the first case regarding what can happen in contact situations with negation, the speech communities involved — Standard Modern Greek and Tsakonian (a Greek “variety” spoken in the eastern Peloponnesos) — are not customarily thought of as separate languages but rather as dialects, though conceivably they could well be different languages since they show numerous and very evident differences in phonology, lexicon, morphology, and syntax. Still, regardless of that issue, one can take the position that contact is contact, and as long as the speech varieties are not identical, we can learn something about what can happen when speakers of different varieties get together.

With regard to negation, as described by Pernot 1934, Tsakonian in the early 20th century was experiencing the encroachment of Standard Modern Greek Ⲗⲉⲩ ‘not’, the finite indicative negator, at the expense of the inherited negative ⲟ (from Ancient Greek οὐ) as more and more Tsakonian speakers become bilingual/bidialectal in Tsakonian and Standard Greek. Thus, purely grammatical uses of negation can enter a speech community from external sources and gain primacy.

The spread of a grammatical morpheme from Standard Modern Greek into Tsakonian shows that grammar can be affected by language contact when the right lexical item is borrowed. In case there is any doubt as to the position that the “foreign” Ⲗⲉⲩ occupies in the Tsakonian system, its grammatical isomorphism with native ⲟ is suggested by the occurrence of an interesting hybrid form Ⲗⲟⲩ, with the consonantism of standard Greek Ⲗⲉⲩ and the vocalism of the inherited negator ⲟ, under the assumption that there must have been systemic parallelism between the two forms for a mixture like Ⲗⲟⲩ to develop. This hybrid form becomes important in the context of the

next case study, the etymology of ὄχι ‘no’, to which we now turn.

### 3. Case Study #2— The Etymology of ὄχι

On the one hand, the etymology of ὄχι is straightforward, in that there is really no doubt as to what its ultimate source is; however, complications arise in working out the details of the development of its etymon.

The ultimate source must surely be Ancient Greek (Attic dialect) οὐχί ‘not’, a clausal negator, itself a composite — and presumably emphatic — form from οὐ ‘not’, the negator of facts and statements, plus -χί, an emphasizing element seen also within Greek in μήχί ‘not’ (formed with the modal negator μή) and ναιχί ‘yea, verily’ (cf. ναι ‘yea’). Indeed, composite negation as seen in οὐχί is not an uncommon phenomenon at all, being widespread not only in Greek — note as well οὐδέ ‘but/and not, nor’ from οὐ and the connective δε ‘but’ — but also in English, e.g. *not* from Old English *nā* ‘no’ plus *wiht* ‘thing’.

Nonetheless, there are some problems of detail that are raised by this etymology. For one thing, there is an unmotivated change in the position of the main accent, from the final syllable of οὐχί to the initial syllable in ὄχι; generally, the place of the Ancient Greek acute accent in a word is maintained as the syllable with primary stress in Modern Greek, so this accent shift demands an explanation.

Second, the vowel development in the first syllable is irregular. From Ancient Greek ου, normally a Modern Greek [u] develops, so that the [o] of ὄχι is unexpected. This problem is actually somewhat more complicated, though, for an unaccented initial vowel generally was dropped in the early Middle Ages (6th century to 12th century, see Browning 1983:57ff.), as in the form that developed into the finite indicative negator of Modern Greek δεν, namely Ancient Greek οὐδέν ‘by no means, not at all’ (an (originally) emphatic negative derives from οὐδέ ‘but/and not’ plus

ἓν, the neuter singular of ‘one’). Thus we would expect οὐχί to yield (the nonoccurring) χί\*.

To get to a form with an initial vowel, in order to be in a position ultimately to account for ὅχι, it is probably easiest to assume that χί\* was restored to οὐχί either by analogy/contamination with οὐ, which was maintained in colloquial usage into the Medieval period before ultimately giving way to δέν, or by borrowing from the learned language — always a possibility within the context of Greek — since οὐ and related forms such as οὐχί were available in the Atticizing high-style Medieval Greek. It is of course conceivable that the (irregular) accent shift noted above occurred early enough to protect the οὐ- of οὐχί from initial unstressed vowel loss (though Pontic κί/οὐκί might point to the accent shift being somewhat late).

Third, taking ὅχι as a development out of οὐχί necessitates the assumption of a shift from a clausal negator, like English *not*, to an independent marker of denial and/or negation, like English *no*. Such shifts in function are not unparalleled (compare Latin *nēn* ‘not’ to French *non* ‘no’, for instance), and Modern Greek ὅχι does have a use as a simple negator in constituent negation and in ellipsis (e.g. θέλω το κόκκινο ὅχι το μπλε ‘I-want the red-one not the blue-one’); still, any given instance of such a shift ought to be motivated if at all possible.

Previous scholarship has tried to address one or both of the first two problems, the irregular accent shift and the irregular vowel development, and other possibilities exist as well.

Georgacas, for instance, posited a general leftward accent shift associated with negation in Greek, as in dialectal (but widespread) ἀνοικτός ‘unopened’ versus ανοικτός ‘open’, where the shift is a reinterpretation of what historically was prefixation of the negative formative αν-, which attracted accent onto antepenultimate syllable, giving ανἀνοικτός, a form that is still widely attested, followed by haplological reduction. This negative retraction could then have applied to οὐχί to give ούχι (later ὅχι). This proposal leaves the vowel change unaccounted for, however.

Dangitsis (1984: s.v.) suggested that the shift of οὐχί to ὄχι was on analogy with pairs of interjections for pain or surprise as οὐφ/οφ, οὐχ/οχ. Presumably, the accent shift and the vowel change are both accounted for since these interjections are monosyllabic and more like the first syllable of ὄχι. However, the basis for this analogy is somewhat tenuous at best, and Dangitsis gives no motivation for why ‘no’ should be remodeled on basis of interjections whose meanings are only vaguely emotive/affective at best.

Perhaps the standard account to date, in that it was adopted by Andriotis (1983: s.v.) is that given by Hatzidakis 1918, though it too is not unproblematic. Hatzidakis suggested that ὄχι was extracted out of ἐγώ ‘I (NOM)’ + οὐχί ‘not’, which would have contracted, in Hatzidakis’s account, to ἐγώχί ([o] + [u] would indeed regularly yield [o]). This contraction was then reanalyzed as a single unit so as to allow accent adjustment to ἐγώχί, but then rereanalyzed as if it were ἐγ-όχί (note that [-o # o-] would also contract regularly to [-o-] in Post-Classical Greek), from which the free form ὄχι could emerge. Though inventive, this account is not without problems. In particular, it is not clear why the combination of ἐγώ with οὐχί should have a special status; Landsman 1988-89, for instance, notes (p.26) that “there is no evidence that ἐγώ appeared with especially high frequency before οὐχί”. Moreover, the accent adjustment part of Hatzidakis’ account would seemingly require univerbation of ἐγώ and οὐχί, whereas the extraction of ὄχι requires the contradictory recognition by speakers (admittedly at a later stage and thus a different set from the earlier speakers) of the independent presence of ἐγώ. In any case, though, this account requires a number of ad hoc steps and seems an overly complicated set of assumptions for such a common word.

There are two further relevant facts about Ancient Greek οὐ(χί), however, that might be useful here. First, as Mark Janse has observed,<sup>1</sup> the proclitic nature of οὐ in Ancient Greek, if it were true of οὐχί as well, would

---

<sup>1</sup>Personal communication (9/99); I thank Mark for this useful information.

have created a situation from which an unaccented οὐχί, becoming accented as it came to have an independent use, could be initially accented. Second, as Yves Duhoux has noted,<sup>2</sup> there is some ancient testimony in inscriptions of a variant of οὐχί spelled with simply < ο > in the first syllable, so that the occurrence of < ο > later in ὄχι could be a matter of an early split in Greek — maybe dialectal in nature (note, e.g., Tsakonian ο above, from ού) — in the realization of Ancient Greek < ου >, one perhaps concealed in Greek orthography until Medieval times.

Even so, and this is true of all of these accounts, the third problem, that of the functional and semantic shift from clausal negator to free negative form used for denial and negatives, is left unanswered. The only comment on this shift comes from Landsman, who notes the constituent negator use of ὄχι and says simply (p.25) that “given the use of ὄχι in these contexts, the derivation from the ancient interjection and emphatic οὐχί seems plausible and its extension to constituent negation is not problematic”.

Thus, each of these issues needs to be addressed before the etymology of ὄχι can be considered secure. Given that previous attempts fail to address all of these matters adequately, leaving some questions open even if they can solve one of them, other solutions must still be entertained. Landsman in fact made a relevant proposal, not previously considered, which ultimately depends on language contact and which can be further supported. In particular, he suggests that ὄχι may show the effects of influence from Turkish, but he does not develop supporting argumentation to the fullest extent. His comments, in toto, are as follows (p. 25n.14):

It might not be too outrageous nevertheless to suggest the possibility of some influence from Turkish *jo* [sic, for *yo* /BDJ] ‘no’ here. The upwards movement of the head with accompanies ὄχι is often claimed to be Turkish in origin and, although contrary to the usual

---

<sup>2</sup>Personal communication (9/99); my thanks to Professor Duhoux for this valuable information.

reluctance of speakers to borrow basic vocabulary from other languages, it is very easy to imagine the advantage of using a word for ‘no’ which was readily understood by the Turkish occupiers.

This suggestion has much to recommend it, and as it happens, a fuller defense of it can — and should — be mounted, going beyond the relatively brief remarks that Landsman himself provided.

First, there is more within Turkish to cite as a source of influence on the development of ὄχι besides just *yo*. In particular, there is also the form *yok*, which basically has an existential sense (‘there is not’) but which, as an isolated form, means ‘no’, apparently an emphatic ‘no’ moreover, to judge from the description in Redhouse (1981: s.v.) of its use as “a refusal to a request or negative answer to a question.” Moreover, the velar final of *yok* would have aligned it even more definitively with οὐχί (and recall the variant οὐκί, and the Pontic forms mentioned above), providing a more solid basis for some influence of *yok* on the Greek form.

Assuming some role for Turkish *yo* and *yok* in the development of ὄχι provides a ready explanation for the difficulties alluded to above. The vowel development in the initial syllable is explained and the accent on that vowel is accounted for as well, inasmuch as both *yo* and *yok* contain an initial accented [o]. Moreover, the shift from clausal negator to free negation word seen in the development of οὐχί to ὄχι is solved by reference to Turkish *yo/yok*, since those forms are used as free negatives in Turkish, so that identifying them with οὐχί could have induced a change on the part of Greek speakers in the function of their corresponding word.

Moreover, there is actually a wealth of corroborating evidence that makes the positing of Turkish influence on ὄχι a wholly plausible solution to the difficulties in the details of the passage from οὐχί to ὄχι.

First, despite what Landsman says about speakers showing a “reluctance” to borrowing negatives, there are several examples that show just that, including the Tsakonian borrowing of δεῦ noted above and other



cases to be discussed in the paragraphs to follow, especially involving both Greek and Turkish.

Second, and even more striking here, there is the fact that Greek has borrowed Turkish *yok* outright, spelled γιοκ (phonetically [yok]), a form now used as an emphatic negative, i.e. ‘absolutely not!’, as in a Greek newspaper headline from the 1980s: *ΤΟΥΡΚΙΚή η Κύπρος – γιοκ!* ‘Cyprus Turkish?! No way!’. It can be noted also that (Slavic) Macedonian, too, seems to have borrowed *yok*, since it has the form *jok* that can occur in a negative expression, as in *jok ut tuka* ‘Get-out of here!’.

Third, further support for the hypothesis of Turkish influence comes from the timing of the appearance of ὄχι, for the dating of its first occurrence is consistent with it being the result of contact with Turkish. Hatzidakis 1918 places its first occurrence to not earlier than the 14th century, and Landsman (p.25) states that “our earliest attestation of ὄχι may be in the fifteenth-century Escorial manuscript of the romance *Lybistros and Rodamne*.” Thus ὄχι (with [o] and initial stress) first appears as such during the early part of the period of Greco-Turkish contact.

Fourth, the nature of the contact and influence that is evident between Greek and Turkish in that period would have been such that influence on a grammatical element like οὐχί would not be surprising. The significant contact between speakers of Greek and speakers of Turkish in medieval times, especially after the fall of Constantinople at the hands of the Turks in 1453 and the subsequent Turkish occupation of much of what is now Greece, was generally intense and intimate. To judge from the evidence of calques, such as the idiomatic use of ‘eat’ in the phrase *τρώγω ξύλο* ‘I get a beating’, literally, “I eat wood”, based on Turkish use of *yemek* ‘to eat’ in *kötek yemek* ‘to get a beating’ (literally “to eat a blow”), there was some attempt on the part of Greeks to learn Turkish and vice-versa, even if this learning may have been imperfect. In such a context of at least limited bilingualism, there would have been recognition of functionally congruent forms in each language by Greeks learning Turkish and Turks learning Greek. One can then surmise that the influence of Turkish *yo/yok* on οὐχί resulted from such

a cross-language identification of these forms as parallel.

In fact, Turkish influence on a word so linked to common everyday discourse as ‘no’ is part of a pattern of intimate borrowings in the Balkans, involving interjections, conversational markers, and the like, and thus should not be surprising. For example, Turkish *aman* ‘oh!, ah!, mercy! for goodness’ sake!’ is the source, via borrowing, of Greek αμάν, and *de* ‘now then; come on!’ was borrowed into Greek as ντε, the particle showing impatience that is especially common with imperatives, e.g. έλα ντε ‘Come on, already!’. Moreover, the direction of this intimate borrowing was not one-sided, for Greek μπα, a particle indicating “surprise, rejection, negation, or assent” (Pring 1975: s.v.), is the apparent source of Turkish *ba* ‘oh, oh, indeed!’” (so Redhouse 1981: s.v.). And, the intimate borrowing was not restricted to lexical items per se, for the Turkish process of *ofm*-reduplication, as in *kitap mitap* ‘books and such’ found its way into Greek, e.g. τζόντζαλα μόντζαλα ‘this and that’, literally, “rags and such” (Levy 1980, Joseph 1984, Joseph 1994), and there is agreement between Turkish and Greek in the affective, sound-symbolic value of coronal affricates, Turkish *c/ç* and Greek τσ/τζ (Marchand 1953, Joseph 1984).

In addition, and as a final piece of suggestive corroborative evidence, there is the common gesture for ‘no’ found among Greek and Turkish speakers, namely the upward head-nod (found as well in Arabic speech communities and in parts of Africa). Morris et al. 1979 suggest that it continues an Ancient Greek gesture for ‘no’ based on its distribution of in modern-day Europe: Greece, Turkey, and old Magna Graecia only, with a boundary in Italy between the Greek-type gesture and western European one coinciding with the ancient boundary between Greek Campania and Southern Etruscan territory).<sup>3</sup> It would thus appear that the gesture spread from Greek into Turkish (contrary to what Landsman, p. 25n.14, suggests), and so it would

---

<sup>3</sup>I thank Dr. Timothy McNiven of The Ohio State University Department of Classics for bringing this information to my attention.

be further evidence of the transferability in contact situations of forms signifying ‘no’. Moreover, even if the Turkish gesture is borrowed from Greek, its adoption by Turks would have meant that there would have been upward-head-nodding negation-expressing Turks saying *yo(k)* as a model for the reshaping of the word for ‘no’ by upward-head-nodding negation-expressing Greeks in the medieval period.

Thus, there is no reason to doubt that there could have been a Turkish hand in the development of ὅχι.

Moreover, the example from Tsakonian discussed above is particularly telling and bears emphasizing here; in particular, the mixed form δον found among some speakers of Tsakonian has the consonantism of standard Greek δειν and the vocalism of the inherited negator εἰ, and is thus a hybrid with a blend of native and foreign elements in exactly the same way as is proposed here for ὅχι, with its Turkish vowel in the initial syllable and its Greek consonantism and final syllable.

Therefore, contact appears to have played a key role in the development of Modern Greek ὅχι; since the basic use of the Turkish source of influence was as an independent utterance for denial, presumably the first use of ὅχι to be affected by the innovative “Turkified” pronunciation (with accented ο-) would have been ὅχι in this more discourse-bound usage, so that the innovative pronunciation must have been extended within Greek to the use of earlier ούχι as constituent negator, a more grammatical use. Thus contact ultimately, but really only indirectly, had an effect on more grammatical uses of negative marker. This assumption allows for the conclusion that so-called grammatical borrowing might actually not be different from lexical borrowing, if the grammatical effects can result from language-internal spread based on external borrowings.

### 3. Some Other Relevant Developments with Negation

There is much more that can be said about negation in Greek and in the Balkans more generally, and much

as well has to do with language contact; though these further case studies are discussed in some detail elsewhere (Joseph 1999c, 2000, Forthcoming), they can be listed here briefly for the record:

- VERB- ‘not’ -VERB structures in the Balkans (Banfi 1985) appear to have spread from a Greek source into Bulgarian, Romanian, Albanian, and even Turkish (Joseph 2000)
- Prohibitive *mi* occurs in Southeast Macedonian and Eastern Bulgarian, a clear borrowing from Greek (Topolinjska 1995; Greenberg 1996; Joseph 1999c, 2000)
- Greek μη(ν) and Albanian **mos** show striking functional parallels, and one use, as an independent prohibitive utterance, may be a Balkan innovation; it is found also in Romany and South Slavic (Joseph 2000; Forthcoming).

Finally, not all changes in Greek negation involve contact — fusion of negative marker with verb is found all over Balkans, and seems to be occurring in Greek with δεν though not under influence of any other languages; also, in an unrelated development, fusion of negative ο with ‘be’ is found in Tsakonian to create a negative auxiliary (Joseph 1999c; Forthcoming)

#### 4. Conclusion

Overall, these cases show how pervasive the effects of language contact can be, even with so highly grammatical a part of a language as negation, which might otherwise be considered resistant to contact-induced change. This result is thus in keeping with Thomason & Kaufman 1988’s claim that there are no linguistic constraints on the outcome of language contact. Furthermore, these facts concerning negation in Greek and in the Balkans provide insight into the nature of contact that Greek speakers had with speakers of other languages in the Balkans — intense, close, and

intimate with some bi- or multi-lingualism — and possibly into the nature of apparent grammatical effects in borrowing, in that they can, it seems, be secondary developments and thus only indirectly brought on by borrowing.

## REFERENCES

- Ανδρωτίης, Ν. 1983. Ετυμολογικό Λεξικό της Κοινής Νεοελληνικής. Θεσσαλονίκη: Ινστιτούτο Νεοελληνικών Σπουδών.
- Banfi, Emanuele. 1985. *Linguistica balcanica*. Bologna: Zanichelli.
- Browning, R. 1983. *Medieval and Modern Greek*. Cambridge: Cambridge University Press.
- Δαγκύτης, Κ. 1984. Ετυμολογικό Λεξικό της Νεοελληνικής: Α - Π. Athens: I. G. Basileiou.
- Georgacas, Demetrius. 1980 et seq. Unpublished materials for National Endowment for the Humanities dictionary project for standard Modern Greek (described in Georgacas 1981: “The first large international Dictionary of Common and Cultivated Modern Greek and a sample of 34 entries.” Μανιχατοφόρος. Δελτίο Νεοελληνικών Σπουδών 18, 35-66.).
- Greenberg, R. 1996. *The Balkan Slavic Appellative*. Munich: LINCOM Europa.
- Joseph, B. 1984. “Balkan Expressive and Affective Phonology—The Case of Greek ts/dz.” In: K. Shangriladze & E. Townsend, eds., *Papers for the V. Congress of Southeast European Studies, Belgrade, September 1984*. Columbus: Slavica Publishers, 227-237.
- Joseph, B. 1994. “Modern Greek ts: beyond sound symbolism”. In Sound Symbolism, L. Hinton, J. Nichols, & J. Ohala, eds. Cambridge: Cambridge University Press, pp. 222-236.
- Joseph, B. 1999a. “On the Development of Modern Greek ὄχι ‘no!’”. Unpublished manuscript.
- Joseph, B. 1999b. “Processes of Spread for Syntactic Constructions in the Balkans”. To appear in C. Tzitzilis, ed. *Balkan Linguistics: Synchrony and Diachrony* (University of Thessaloniki).
- Joseph, B. 1999c. “Is Balkan Comparative Syntax Possible?” To appear in M. Rivero & A. Ralli, eds., *Balkan Syntax in a Comparative Light* (Oxford University Press, 1999).
- Joseph, B. 2000. “Balkan Perspectives on the Syntax of Indo-European \*nē”. To appear in *Proceedings of the 15th East Coast Indo-European Conference* (Journal of Indo-European Studies Monograph Series).
- Joseph, B. Forthcoming. *Studies in Balkan Negation*.

- Landsman, D. 1988-1989. "The History of some Greek Negatives: Phonology, Grammar, and Meaning." *Glossologia* 7-8, 13-31.
- Levy, H. 1980. "An Anatolian Language-Trait in Byzantios' Babylonia and Parallel Traits on Three Continents." *MGSA (Modern Greek Studies Association) Bulletin* 12, 47-55.
- Marchand, H. 1953. "Über die Bildung der lautsymbolischen Wörter im Türkischen." *Oriens* 6, 50-62.
- Morris, Desmond, Peter Collett, Peter Marsh & Margaret O'Shaughnessy. 1979. *Gestures. Their Origins and Distribution*. New York: Stein and Day.
- Pernot, H. 1934. *Introduction à l'étude du dialecte tsakonien*. Paris: Société d'édition "Les Belles lettres".
- Pring, J. T. 1975. *The Oxford Dictionary of Modern Greek (Greek-English)*. Oxford: Clarendon Press.
- Redhouse, J. 1981. *New Redhouse Turkish-English dictionary*. Istanbul: Redhouse Press.
- Thomason, S. & T. Kaufman. 1988. *Language contact, creolization, and genetic linguistics*. Berkeley: University of California Press.
- Topolinjska, Z. 1995. *Macedonian Dialects in the Aegean Part of Macedonia, Book 1: Syntax, Volume I.* Skopje: Macedonian Academy of Sciences and Arts.
- Κατζίδakis, Γ. 1918. "Ετυμολογικά και Συντακτικά." *Λεξικογραφικόν Αρχεῖον της Μέσης και Νέας Ελληνικής* 5, 3-16.