

Multilingual lexicography for adult immigrant groups: bringing strange bedfellows together

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Abstract

This paper presents a multilingual lexicographic project – expected to be completed by the end of 2015 – which focuses on the development of a set of corpus-based dictionaries for users not previously targeted; namely, adult immigrants in Greece trying to cope with a new reality. The project caters for languages that as of yet remain disjoint and also encompasses a variety of disconnected corpora, relevant to communicative situations with which the target group is most likely to cope.

The ultimate goal of this project is to reduce the linguistic gap between specific disconnected languages and styles as well as set the ground for the development of further relevant electronic language resources and reference works. This endeavour is currently at its final stage, namely the translation of the Greek content into the nine target languages: Albanian, Arabic, Bulgarian, Chinese, English, Polish, Romanian, Russian, and Serbian. This process will result in the compilation of nine bilingual dictionaries – from Greek into each of the aforementioned languages – with more than 15,000 single- and multi-word entries.

Keywords: multilingual lexicography; corpus-based lexicography; lexicography for disjoint languages and disconnected corpora

1. Introduction

This paper describes a multilingual set of dictionaries, which connects language pairs that as of yet remain unconnected, and outlines the approach that was adopted towards its creation. The significance of the user perspective in lexicography has been established and revisited in the bibliography for decades resulting in the continuous creation of significant works in the field (indicative works include Hartmann, R.R.K., 1979; Dolezal, 1999; Tarp, 2008). In this project, the lexicographic team was presented with a double challenge: not only did they have to identify and analyse user requirements, but they had to do so with no prior linguistic, much less lexicographic, work on which they could rely. After explaining the methodology used by the research team to pinpoint user profiles and connect them to specific needs, the paper goes on to describe the lexicographic process itself, in terms of lemma selection and disambiguation, example selection, categorisation of senses into semantic domains and the inclusion of extra information for each dictionary entry. At the end of the paper, the results of this project are summarised, along with some thoughts concerning their exploitation in future work.

2. Methodology of user group identification and analysis

When designing dictionaries, in terms of language coverage, entry selection and presentation mode, the lexicographic team concentrated on the user perspective in attempting to identify the users' reference needs; their proficiency level and background knowledge; their reference skills and strategies; as well as the effectiveness of dictionary use training (Varantola, 2002). Consequently, a needs analysis had to be conducted in order to primarily identify the user group profile(s) and respective needs.

The chief difficulty in conducting such an investigation was the team's inability to follow the methodology set by mainstream lexicographic research (Atkins, 1998). At those early stages of the dictionary-making process, it was not easy to locate the intended users in the first place, much less ask them to participate in any type of survey, since the target group's main concern was to struggle for a living in a new and unfamiliar reality. Additionally, as already mentioned, the specific user group had never previously been targeted, leaving the research team with a substantial gap in the bibliography. Thus, the team decided to postpone actual contact with the target group until a draft of the dictionaries became available online. Members of the target group would then be able to pilot the dictionaries and give valuable feedback while actually using it. This approach follows the so-called "simultaneous feedback" from target users to dictionary compilers (de Schryver et al., 2000). In order to avoid receiving this valuable user feedback too late in the process, which would at best make it useful for implementation in a revised edition of the dictionaries, it was decided to identify prospect user requirements and preferences by piloting an early draft of the dictionaries and receiving feedback through questionnaires. This process is expected to start immediately after the dictionaries are published online, so that compilers can test their hypotheses and be able to make any adjustments or improvements where needed with regards to this feedback.

In the meantime, compilers collected all available data which would enable them to initialise the compilation process; namely official, general-purpose statistical data (Vacalopoulou et al., 2011). The fact is that relevant available data describing the characteristics of immigrants in Greece are very scarce. With the exception of a small number of quantitative and qualitative surveys on immigration (Baldwin-Edwards, 2004; 2008), the only sources available at the time of research into this project were the 2001 census survey data and official data acquired from eurostat (<http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat>). A study of these sources led to the conclusion that the primary immigrant nationalities in Greece were Albanian, Bulgarian, Georgian, Romanian, Russian, Ukrainian, Polish, Pakistani, and Egyptian (in order of multitude). In terms of age, the majority of the immigrant population belonged to the 15–64 years old age group. Another distinct characteristic of the target group was that the main reason for residence permit award (68%) was dependent employment, followed by family reunification and self-employment (about 12% each) and a considerably smaller number of immigrants who moved to Greece in

order to study. The target group profile was completed with the identification of the place that the majority of immigrants occupied in the Greek labour market, revealing building construction, agriculture, industry and tourism as the main activities of males and housekeeping, cleaning, agriculture and tourism as the main activities of females.

For the purposes of dictionary compilation, the target group's level of education and language literacy were also considered. According to the aforementioned sources, the educational level of the vast majority of immigrants in Greece ranged from medium to low. In particular, the statistics suggested the existence of three main categories in terms of education and literacy: (a) people who had completed secondary education before migrating; (b) people who had only attended primary school, and (c) people who were considered illiterate. The first two categories comprised mainly immigrants of European origin (from Albania, Bulgaria, Poland, and Serbia) whereas the third category was populated with immigrants from African and Asian countries. Lastly, the sources revealed that, as expected, the vast majority of all these groups had little or no prior knowledge of Greek. Combining the above data, the research team decided that it was safe to assume that the user group described above had little, if any, experience in dictionary use.

Based on these data, the research team concluded that as diverse as the intended target group was in terms of nationality, level of literacy and language proficiency in Greek, the tendency was towards a lower level. Based on such a user profile, the team pinpointed user needs and requirements as defined by the users' struggle to be included in the Greek society. The dictionaries would thus have to be designed in view of providing basic linguistic knowledge, taking into account the following linguistic and non-linguistic factors: the user group's communicative needs in official settings (e.g. in dealing with the Greek authorities or applying for a green card) and social settings; needs to address everyday issues (e.g. travel and transportation); language learning in formal or informal settings; and familiarization with the general cultural and social context.

3. Lemma Selection

As aforementioned, the dictionaries cover the most common range of foreign languages used and/or understood by the majority of the immigrant community in Greece. Thus, nine bilingual dictionaries for users not previously targeted are being created; specifically Greek–Albanian (EL–AL), Greek–Arabic (EL–AR), Greek–Bulgarian (EL–BG), Greek–Chinese (EL–CH), Greek–English (EL–EN), Greek–Polish (EL–PL), Greek–Romanian (EL–RO), Greek–Russian (EL–RU), and Greek–Serbian (EL–SR). English was selected as one of the target languages to compensate for a lack of languages of less represented immigrant groups in Greece while being an official or widely used language in the countries of several of the respective nationalities (e.g. Pakistan, Bangladesh, the Philippines). At the same time, the Greek–English language pair was included for reasons of lexicographic convenience, as it is generally recognised

as an “international language of communication, a global language [...], which enables speakers of any language to have a common ground with each other [...]” (Kernerman, 2004). Apart from being convenient for users, English also proved a useful means for translators to double-check the rest of the language pairs (i.e. from Greek) which are considerably less frequent.

Each of these bilingual dictionaries consists of more than 15,000 entries covering mainly the basic vocabulary of Greek. Even though a formal complete list of basic Greek vocabulary is still missing from the literature, the basic vocabulary is conceived as one which comprises not only the most frequent items but also less frequent words and phrases that are relative to everyday activities. Thus, a common definition of such a list would be “the set of lexical items in a language that are most resistant to replacement, referring to the most common and universal elements of human experience, such as parts of the body [...], universal features of the environment [...], common activities [...], and the lowest numerals.” (Dictionary.com). For the purposes of this project, the compiling team considered a combination of items which occur with significant frequency in general language corpora, of items representing basic meanings as described in the definition above as well as of items which help interpret the rest of the vocabulary. This last set of items is known in lexicographic practice as a ‘defining vocabulary’ (Atkins et al., 2008).

Apart from the basic vocabulary, another major category of entries is the one often occurring in official, administrative or other documents which the target group is likely to encounter during their stay in the country, as, for instance, when applying for a residence or work permit. To this end, a selection of more technical terms were included as well, pertaining to subject fields that are of utmost interest to the target group. Although technical jargon is generally expected to be part of general language dictionaries (Béjoint, 1988), its scope was limited to those terms that are likely to appear in administrative or other official documents, which were considered more relevant to the user group.

Based on the assumption that the target group would lack basic encyclopaedic information about Greece, the dictionaries also contain proper nouns. These consist of names of geographical entities (i.e. cities, islands, regions etc.), official bodies (i.e. ministries and other state organisations) and geopolitical entities (*Ευρωπαϊκή Ένωση* = *European Union*). Acronyms representing official organisations and geopolitical entities are also included in the entry list.

The dictionaries contain both single- and multi-word entries. Apart from the types of multi-word entities that would usually have entry status in bilingual dictionaries (*ασφάλεια ζωής* = *life insurance*, *χαρτί υγείας* = *toilet paper*), it was decided that the dictionaries would include more types of multi-word entries so as to extend the linguistic coverage (Granger et al., 2012). Thus, entries include several set phrases, such as everyday expressions that would normally appear in tourist phrase books,

collocations and idioms (*χρόνια πολλά* = *happy birthday*, *παίρνω τηλέφωνο* = *make a phone call*, *παίρνω από λόγια* = *listen to reason*). The value of this decision in practice can be understood if one considers that only a few, if any, of these entities could be inferred from word-to-word translation into Greek, as it is often the case (Svensén, 2009). The argument can be further strengthened if one considers the number of disjoint languages and styles this set of dictionary brings together.

Alternative forms of the same lexical item are separate entries interlinked with each other. For instance, *Προαστιακός Σιδηρόδρομος* (*Suburban Railway*) and *Προαστιακός* (*Suburban*) are two separate dictionary entries linking to each other. Similarly, *αντισυλληπτικό χάπι* (*contraceptive pill*) and *αντισυλληπτικό* (*contraceptive*) are treated in the same way. The ‘complete’ form of such lemmas is given main entry status and contains the rest of the information, whereas the secondary entry/entries are cross-referenced to the main entry. In general, when lemmas linked by a cross-reference belong to different registers, the most formal type is given main entry status, as this is the form more likely to occur in official documents. In the case of acronyms, the full name of the entity is given main entry status (*Οργανισμός Ηνωμένων Εθνών* = *United Nations*), with a cross-reference under its acronym (*ΟΗΕ* = *UN*). For reasons of easy reference, acronyms are normalised and thus spelled without full stops between letters.

The process of dictionary compilation was corpus-based; this refers to headword selection, sense disambiguation and extraction of collocations and usage examples. Dictionary entries were semi-automatically selected from a variety of sources, namely (a) a large, POS-tagged and lemmatised general-language corpus of modern Greek (Hatzigeorgiu et al., 2000), known as the Hellenic National Corpus (<http://hnc.ilsp.gr/>), (b) a specialised Greek corpus collected within the framework of the current project, that adheres to pre-defined domains (public administration, culture, education, health, travel, and welfare), and (c) already existing dictionaries, glossaries and travel phrase books, customised to better suit user requirements (communicative situations and relevant vocabulary, etc.). Such resources were previously developed by ILSP for the purpose of other projects and include either published¹ or non-published works.

Furthermore, according to standard practice, the dictionaries include every word in the examples as an entry itself for easy reference; in other words, there is no lexical item in the examples (excluding certain proper names) which does not appear in the dictionaries itself as a separate entry. This led to adding a considerable number of entries to the dictionaries and maintaining a better balance, in terms of content, between everyday vocabulary and the administrative jargon of the public service, thus making sample entries of the two corpora less disconnected. The ultimate goal of this

¹ Two examples of published works are the *Electronic Greek–Turkish Dictionary for Young Learners*, Athens 2004 and *XENION Lexicon*, Athens 2005.

merge was to reconcile “the technical meaning and the everyday meaning [...] and making a concise meaningful representation of the whole to the public” (Hanks, 2010).

4. Lemma Disambiguation

As in most dictionaries of Greek, the main criterion for distinguishing between lemmas is morphology. Therefore, *Δεκέμβριος* and *Δεκέμβρης* (= *December*) are separate entries, as are *φέτος* and *εφέτος* (= *this year*), *κιάλας* and *κιάλα* (= *already*), etc.

The second criterion used for distinguishing between lemmas is part of speech. Therefore, homographs belonging to different parts of speech (*ωραίος, ωραία, ωραίο* = *nice*, *ωραία* = *nicely*) form separate entries. In an attempt to tackle language learning difficulties arising from the fact that “Greek is a highly inflectional language and marks verb suffixes for person and number” (Holton et al., 1997), the past participle of a verb is treated as an adjective. Therefore, past participles form separate entries (*πλυμένος, πλυμένη, πλυμένο* = *washed*, p.p. of the verb *πλένω* = *wash*; *κλειδωμένος, κλειδωμένη, κλειδωμένο* = *locked*, p.p. of the verb *κλειδώνω* = *lock*). Following similar simplification criteria, other types of word derivatives are separate entries in these dictionaries. Therefore, adverbs (*καλά* = *well*; *γρήγορα* = *quickly*) are different entries from the respective adjectives (*καλός, καλή, καλό* = *good*; *γρήγορος, γρήγορη, γρήγορο* = *quick*).

As is standard practice in regular monolingual dictionaries, every single-word entry appears in the base form. As a result, verbs appear in the first person singular present in the active voice; nouns appear in the singular nominative; adjectives and past participles appear in the nominative positive (in this case, in the masculine, feminine and neutral); and adverbs appear in the positive. Exceptions to the above arise when what is considered as the base form is either ungrammatical or particularly infrequent in Greek (*πρέπει* = *it must*, the third instead of the first person, *γυαλιά ηλίου* = *sun-glasses*, the plural instead of the singular, *αρρωσταίνω* = *fall ill* instead of *αρρωσταίω* = *cause somebody to fall ill*).

Following the simplification criterion further on, nouns referring to professions or other human activities form two different entries (i.e. masculine and feminine) as, in most cases, their morphology in Greek differs (*αθλητής* and *αθλήτρια* = *athlete*, *καταστηματάρχης* and *καταστηματάρχισσα* = *shop-owner*). Rare exceptions to the above rule include nouns with identical masculine and feminine forms (*ηθοποιός* = *actor* and *actress*; *πολιτικός* = *male or female politician*).

Finally, and along the same lines, the comparative and superlative of a few highly frequent adjectives and adverbs are also given separate entry status. Thus, *καλύτερος, καλύτερη, καλύτερο* = *better* as well as *χειρότερος, χειρότερη, χειρότερο* = *more* appear separately from *καλός* = *good* and *κακός* = *bad*, respectively.

5. Examples of Use as Bearers and Differentiators of Meaning

As aforementioned, this resource does not only bring together disjoint languages but also highly disconnected corpora. In order to meet this double challenge, it was decided that a certain set of rules were to be followed. First, as the dictionaries are mainly targeted towards starter learners of Greek who are in need of speedy learning, it was decided that only basic meanings would be included in them. Meanings are implicitly presented through one or more examples of usage, which, along with their translations, bear the informative load. This makes examples of usage a core element of the dictionaries, playing the additional role of describing each meaning, due to lack of definition. This led to additional difficulty in selecting the right example(s) for each meaning. For instance, a successful example of the verb *αγωνίζομαι* = *struggle* would be *Αγωνίστηκε πολύ για να καταφέρει αυτό που ήθελε* = *She struggled a lot to get what she wanted*, as not only does it include the word in context but it also helps the user to capture its meaning. In general, great care was taken to select examples that would comply with as many items as possible on a list presented in Prinsloo (2013), according to which ‘[g]ood examples disambiguate senses; distinguish one meaning from another; [...] show or indicate the selectional range; place the word in context; specify the semantic range; indicate the collocational behaviour [...]; illustrate the grammatical patterns; specify the word order; give pragmatic uses; note stylistic features; indicate appropriate registers [...]’.

Second, dictionary examples were carefully selected so as to reflect not only different meanings but also the most basic forms of usage, grammar and collocation. Therefore, for instance, the active and passive forms of verbs are presented by separate examples whenever voice differentiates meaning as well; the same process is followed for verbs used with different prepositions, items combined with different collocates etc.

Furthermore, as the lexicographic team’s intent was to include as much information as possible expressed in the most user-friendly way possible, there was a conscious attempt to avoid boring the user. Therefore, while a large number of the examples were extracted from the Hellenic National Corpus, they were usually shortened and/or simplified in order to suit the target group level as is common lexicographic practice (Kilgarriff, 2013). Therefore, examples on the whole are short and contain no excess information. They usually comprise one sentence, although some dialogue is, at times, included in the case of everyday phrases, such as greetings or asking for information. In addition to accelerating the learning process, this brevity principle also simplifies the task of translating the Greek content into nine languages.

Finally, bearing in mind the great variety of target group backgrounds, additional attention was given to political correctness. Dictionary examples are void of any social, political, racial, national, religious or gender bias.

In their attempt to comply with the aforementioned criteria, the lexicographic team

decided to follow the common practice of modifying “corpus sentences which are promising but in some way flawed” when applicable (Kilgarriff, 2013). Such ‘flaws’ included – among others – verbosity, political incorrectness and inclusion of lexical items which were not part of the entry catalogue.

6. Semantic Domains

For easier reference, different meanings of each entry are classified into broad domains reflecting certain communicative contexts. As noted above, this is a highly particular target group in terms of dictionary use, whose communicative needs could be viewed as a combination of the needs of a first-time tourist who is expected to be an active citizen at the same time. Some examples of such needs would be the need to use public transport, to go shopping, to look for a flat, or to register a child in school. As a result, the domains have to be detailed enough to cater for as many different aspects as possible and inclusive enough to facilitate usability. Another reason for classifying dictionary entries into domains was that, according to studies, users of bilingual dictionaries rarely go through the list of senses of each entry to find the appropriate one, as there is a tendency to select the first meaning (Lew, 2004). The team’s assumption was that users would be in a better position to locate the appropriate meaning if senses were tagged for semantic domain. In other words, this classification will hopefully help users to unambiguously retrieve the appropriate information. This assumption, of course, will have to be tested in the piloting stage.

Furthermore, users can simultaneously view different senses of each lemma belonging to different domains, thus being able to compare and contrast among them and gain a better understanding of each word. The communicative domains that were used in the dictionaries are illustrated in Table 1 below, followed by a short description and some indicative examples of entries.

| Domain | Description | Examples |
|---|--|---|
| <ul style="list-style-type: none"> • Culture, recreation and the media | <ul style="list-style-type: none"> • vocabulary from the arts; hobbies & spare time; TV & other media | <ul style="list-style-type: none"> • <i>μουσική</i> = <i>music</i>; <i>μπαλέτο</i> = <i>ballet</i>; <i>μικρές αγγελίες</i> = <i>classified ads</i> |
| <ul style="list-style-type: none"> • Education | <ul style="list-style-type: none"> • all aspects | <ul style="list-style-type: none"> • <i>μάθημα</i> = <i>lesson</i>; <i>νηπιαγωγείο</i> = <i>nursery school</i> |
| <ul style="list-style-type: none"> • Environment | <ul style="list-style-type: none"> • flora & fauna; weather; ecology etc. | <ul style="list-style-type: none"> • <i>λίμνη</i> = <i>lake</i>; <i>μέλισσα</i> = <i>bee</i>; <i>μόλυνση</i> = <i>pollution</i> |
| <ul style="list-style-type: none"> • Finance | <ul style="list-style-type: none"> • money & the economy; taxation; bank | <ul style="list-style-type: none"> • <i>λογαριασμός</i> = <i>bill</i>; <i>μετρητά</i> = <i>cash</i>; <i>ναύλα</i> = <i>fare</i> |

| | | |
|--------------------------------|---|---|
| | transactions etc. | |
| • Geography | • countries; nationalities; languages; Greek cities & areas | • <i>Μεσόγειος Θάλασσα = Mediterranean Sea; ήπειρος = continent</i> |
| • Housing & Accommodation | • parts of the house; furniture & appliances; hotels etc. | • <i>κουζίνα = kitchen; κουζίνα = cooker</i> |
| • Labour & Insurance | • all aspects | • <i>ανεργία = unemployment; μισθοδοσία = payroll</i> |
| • Law, Justice & Public Safety | • all aspects | • <i>δικηγόρος = lawyer; παράνομος = illegal</i> |
| • Physical condition & Health | • parts of the body; diseases; doctors etc | • <i>μελανιά = bruise; μικρόβιο = virus</i> |
| • Public Administration | • all aspects | • <i>ληξιαρχείο = registry office; πολίτης = citizen</i> |
| • Greek Holidays & Traditions | • the most common ones | • <i>Πάσχα = Easter; κηδεία = funeral</i> |
| • Relations & Family | • all aspects | • <i>μητέρα = mother; παντρεμένος = married</i> |
| • Science & Technology | • widely used terms | • <i>μηχανικός = mechanic; κινητό τηλέφωνο = mobile phone</i> |
| • Transport & Travel | • urban transport; travelling | • <i>λιμάνι = port; μετρό = metro</i> |

Table 1: Dictionary domains

As expected, the most populated domain is general vocabulary. For mainly educational reasons, part of this was further subcategorized into easily grasped vocabulary groups including: numbers, clothing and accessories, food and cooking, time, space, colours, units of measurement, and everyday interaction (informal words and expressions).

7. Additional Entry Information

Excluding entries which are cross-references, each dictionary entry is accompanied by an audio file to exemplify pronunciation, hyphenation, alternative entry types, basic

grammatical information (i.e. the masculine, feminine and neutral type for all adjectives and past participles) and examples of usage. Each example is translated into nine languages, with the entry lemma highlighted in the example.

Concerning pronunciation, audio files also accompany all dictionary examples in Greek and their Bulgarian translations using a synthetic voice. These are expected to support users with vision or literacy problems on the one hand and also help the vast majority of users who are unfamiliar with the Greek script on the other.

Finally, all multi-word entries are linked with each of their components (excluding functional words) through cross references. Apart from facilitating easy reference this feature also bears a pedagogical added value, given that most of the words which form these phrases are inflected types of other entries. It, therefore, becomes easier for users to link each inflected type to the base form of the entry.

8. Results and Future Work

We presented lexicographic work targeted at the development of a set of nine online bilingual dictionaries for immigrants in Greece. This project (which is currently at the translation stage) is expected to be finished by the end of 2015 and its results will be freely available online.

Concerning the exploitation of the results of the project, efforts are being made to come up with as many user friendly ways as possible in which different users will be able to make different searches. Various ways of presenting the results of those searches are also explored. The lexicographic team feels that this is of the essence, as the immigration landscape in Greece keeps changing rapidly largely for reasons relating to the country's financial crisis (Triandafyllidou, 2014). Therefore, if such a linguistic resource aspires to remain useful, exploitable and relevant, it must be flexible enough to cater for as wide an audience as possible.

Lastly, the results of this project will form a valuable multilingual resource in themselves, as this set of bilingual dictionaries will provide a common core lexicon for 10 disjoint languages. Another step to be taken will be the exploitation of these unique dictionaries as corpora for the extraction of more reference works and/or the support of NLP tools which will cater for the specific target group.

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