Learning the Greek Language via Greeklish

Alexandros Karakos, John Papaioannou, Anastasia Georgiadou

Department of Electrical and Computer Engineering
Democritus University of Thrace
University Campus - 67100 Xanthi, Greece
Karakos@ee.duth.gr

Abstract. Learning Greek as a second or foreign language has drawn the attention of many researchers throughout time. A dictionary is amongst the first things a foreign language student uses. Reading comprehension is significantly improved by the use of a dictionary, especially when this includes the way words are pronounced. We developed a assistance software for learning the Greek Language via Greeklish. Since, the basic vocabulary of a language is the basis of understanding the language itself, the dictionary proposed aims to make the basic Greek words easier to pronounce as well as to give the explanation of the word in English. The aim of this software is to provide a useful tool to learn the Greek language individually. Moreover, it aims to be involved, as an assistance tool for learning Greek as a second or foreign language.

Keywords: Dictionary, greeklish, transliteration, conversion, transcription.

1 Introduction

The term Greeklish refers to Greek language written with the Latin alphabet – either through transliteration or transcription. Greeklish can be used to applications such as e-mail, IRC and instant messaging, short message service and between Greek people living in other countries [11]. [12]. This way of typing Greek words is popular because it is easier and quicker to type and useful when there is no availability of Greek fonts [15]. Converting documents from Greek to Greeklish and vice versa is being accomplished either with transliteration or transcription [1]. Transliteration is the mapping of one system of writing to another, word by word, or letter by letter [10]. Through transcription, the sounds of one language are depicted on the best matching script of another language. ISO 843 and ELOT 743 are two standards for transliteration in Greeklish, a one-to-one correspondence [5]. Even though there are several standards, Greeklish texts may include spell variety. Some basic transliteration types are shown in the Table 1.

From the appearance of Greeklish have been numerous attempts to develop applications for conversion from Greeklish to Greek. Most of them can be found and/or downloaded in the Internet [16], [17], [18]. The first complete system for automatic transcription of Greeklish into Greek, obtaining correct spelling is *All Greek to Me!* [19].

Recently, the company Google has announced a new online service, the program Google Transliteration [20], which provides the ability to convert Latin characters to phonetically equivalent characters the language chosen by the user through many languages. This service uses Unicode and the code is already embedded in several applications by providing an API and is available as a bookmarklet for expansion to other websites.

Our goal is learning Greek as a second (L2) or foreign (FL) language. This attempt has drawn the attention of many researchers throughout time. There is a number of different ways to study a language, each of which has advantages and disadvantages. A dictionary is amongst the first things a foreign language student uses and is always a practical tool independently of the way one student might choose. Reading comprehension is significantly improved by the use of a dictionary, especially when this includes the way words are pronounced.

Table 1. Basic transliteration types

	η	υ	ω	ου	θ	ξ	χ	ψ
Phonetic Transliteration	i	i/u	O	u/ou	th	x/ks	ch/h/x	ps
Orthographic Transliteration	h/n	y/u	w/v	oy/ou	8/0	ks/3	x	ps
Keyboard Transliteration	h	Y	w/v	oy	u/q	j	x	c

This project forms a Greek to English and English to Greek dictionary that also provides the user with the pronunciation of the Greek word, typed in Latin characters (Greeklish).The algorithm of the project searches for a key word in the English or Greek word list, depending on the word the user is typing and the dictionary that is selected. More specifically, it implements a full-match or partial-match search, by doing character by character comparison and presenting the translated word that corresponds to the string of characters or words that the user typed, and matches it to the corresponding word in the word list of each dictionary. The process continues until there is a full-matching. After the word is located, the Greek word is translated to Greeklish through an external call to the executable program Greeklish Converter v1.00. Greeklish Converter v1.00 is a standalone program that accomplishes the transliteration of a whole text written in Greek to Greeklish and vice versa. All its functionality is based on its ability to transliterate a single word.

The algorithm that follows is based on reading and then fragmenting the input string [21]. Every single part of the input string is characterized as a word. The word is being transliterated or not after a specific process. The aim of this software is to provide a useful tool, standalone software for each user that desires to learn the Greek

language individually. Moreover, it aims to be involved, as an assistance tool, in the educational process for learning Greek as a second or foreign language.

Older approaches have suggested that there are three general ways approaching how foreign languages can be taught [13]. The first one is to learn the general rules, learn and teach comprehension and vocabulary and understand the language's basic grammar structure. The second one is the integration of cultural differences .The third approach claims that it is important to master mother language, learn English as a second language and a third language by preference. As far as it concerns, learning Greek as a second/foreign language, its certification means good knowledge of grammar and writing and also vocabulary [7]. According to the communicative approach language means interaction; it is an interpersonal activity and has a clear connection with society. Language study examines the use of language in context, both its linguistic context (what is said or written before and after a given piece of discourse) and its social, or situational, context (who is speaking, what their social roles are, why they have come together to speak)" [2].

While learning a foreign language it is very helpful to use dictionaries for word meanings and thesaurus. That helps with memorizing the language's vocabulary and also understanding and pronouncing the vocabulary [6]. After all, the alphabet of several foreign languages, including English, is a Latin-based alphabet. Some Greek to English and English to Greek dictionaries provide the user with the pronunciation of the Greek word, typed in Latin characters, to make the word easier to pronounce [8].

Interlanguage contact and its resulting influences is a fascinating and rewarding field for the scholar and the general reader. Among the benefits of studying this linguistic interaction is the assistance which it provides, especially with the planning and organizing of foreign and second language teaching/learning.

Greek language is considered to be one of the 40 major languages [3]. After all, it is well known English language was influenced by the Greek language. The diachronic contribution of Greek to the development of the English language is a great interlanguage influence from one language to another when native speakers come in touch [9]. The English language is beholden to Greek for a major part of its vocabulary. Greek has played a large part in the English language development.

1.2 Programming languages and tools

The programming language used towards the implementation of the software and development of a user-friendly Graphic User Interface (GUI) is C++, combined with Win32 API. Win32 API, the 32-bit API for Windows, is Microsoft's core set of application programming interfaces (APIs) available in the Microsoft Windows operating systems and is designed to be used with C and C++ [14]. It helps an application program to interact with the operating system. Moreover, Microsoft Windows SDK provides tools and tutorial for creating software using WIN32 API.

The standalone application Greeklish Converter v1.00 implements the conversion of Greek to Greeklish characters. This application accomplishes the transliteration of a whole text written in Greek to Greeklish and vice versa and can be used as a standalone or an assistance program. All its functionality is based on its ability to

transliterate a single word. C++ is used because it is compatible with Greeklish Converter, which was implemented in C++, is portable and has a very common compiler. That means that a C program can be compiled for a very wide variety of computer platforms and operating systems with little or no change to its source code.

The words lists used can be found in Freelang open-source software [4]. Freelang's dictionary is a freeware software for windows, very easy to install and includes two word files, the English to Greek words list, with 21.527 words and the Greek to English words list, with 21.237 words.

The software is hosted in a typical compressed form, at http://dalab.ee.duth.gr/~karakos/greeklish/greeklish2.html , and is freely available to all concerned.

After decompression, the executable's structure contains a folder named *language* which includes Freelang's word lists, a folder named *dict* witch include auxiliaries files of the application and a folder named *util* which includes the main files of the application (Figure 1).

To start execution of the program must be activated *grdict.exe* file (double click).
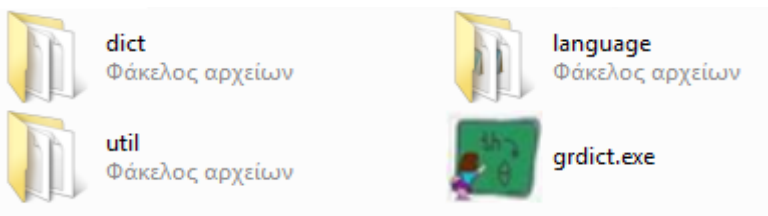

Fig. 1..The executable's structure after decompression of the downloaded greeklish2.rar file

2   The algorithm

The algorithm used in our software is searching for the key word either in the Greek or in the English word list [21]. A partial or full match of the word takes place, by matching characters and the translated word, which corresponds to the typed characters, is being displayed. The same process continues until full match takes place. When the word from English to Greek is located, then for each character of the word a search in a map container takes place.

The algorithm's map includes transliteration rules that define the right Latin character matching each character of the Greek word. This process gives the Greeklish meaning. The stressed letter of the entry key-word is being displayed in bold and capital.
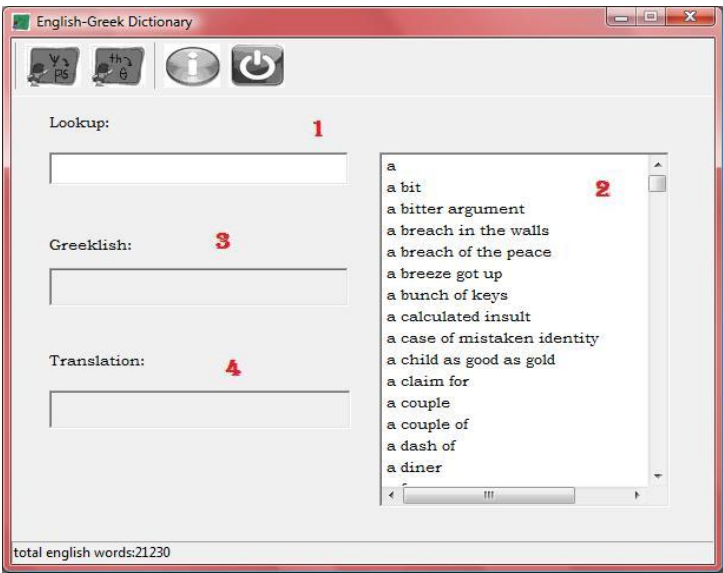
In the case of the Greek-English dictionary the Greek to Latin characters matching, happens in real time. In the case user selects the key-word from the word list, the algorithm searches the meaning in the appropriate file. The Greeklish transliteration follows the same process as above.

The main advantage of the algorithm is that the Greeklish meaning of the word helps to easier understand the phonetic pronunciation, while the stress makes it easier to pronounce the word.

The dictionary that is supported from the algorithm above can be used either as a stand-alone software for each user that desires to learn the Greek language individually, or as an assistance tool, in the educational process for learning Greek as a second or foreign language.

3   Dictionary interface

The initial screen that appears when executing the software displays the English-Greek Dictionary. The same screen appears by switching to the Greek-English Dictionary (Figure 2.).

Fig. 2..The initial screen

The application's toolbar is very simple and consists of four buttons (Figure 3.). The two first buttons are used to switch between the two dictionaries, Greek-English and English-Greek. The third, displays an information window and the last one is the exit button of the application.

Fig. 3..Toolbarhot

While typing a word in the English-Greek Dictionary, lookup area (1), the list shown on the right part of the interface (2) displays the list of the words that correspond to the typed letters. When the word or part of a word that has typed is not in the dictionary then the existing lookup area (1) remains red to indicate the weakness of the dictionary for this word (Figure 4.).

When finished writing the word and it is in the dictionary, then in the region Translation (4) shows the translation of the word and also appears in the area Greeklish (3) the writing of the translation word in greeklish. In Figure 5, we have the result of the typed word broadband.

In the Greeklish translation area (3) the user can also see the word's intonation. The intonated letter is being shown in bold and capital. This is very helpful, since the user can understand how the word is pronounced, when it is also very important for paronymous words, words with similar sound, but different orthography and different meaning.

The same happens by typing a Greek word in the Greek-English Dictionary (Figure 6. and Figure 7.).
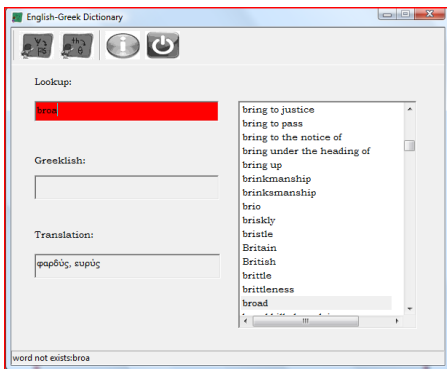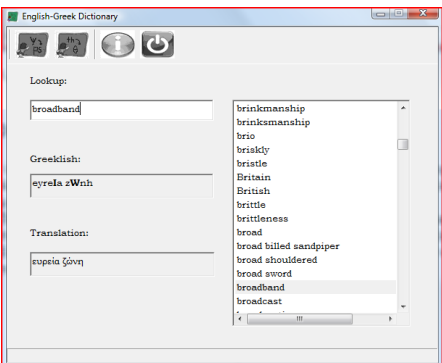

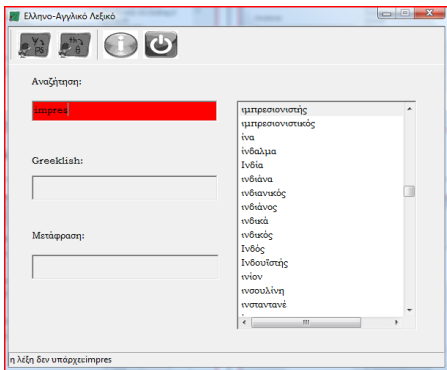**Fig. 4.**.Typing an English word

Fig. 5..Typing the word broadbands
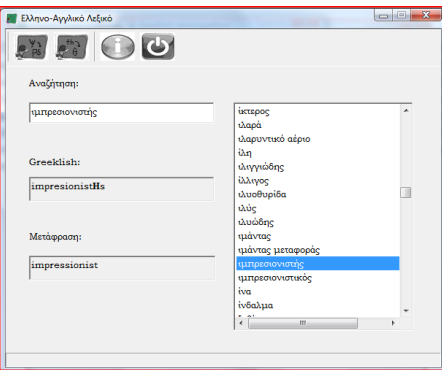

Fig. 6.. Typing an greek word

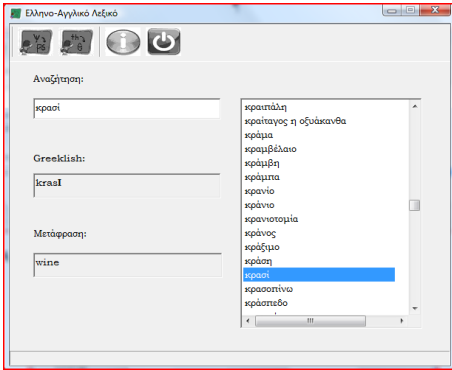**Fig. 7.**. Typing the greek word ιμπρεσιονιστής

Fig. 8.. The paronymous word κρασί
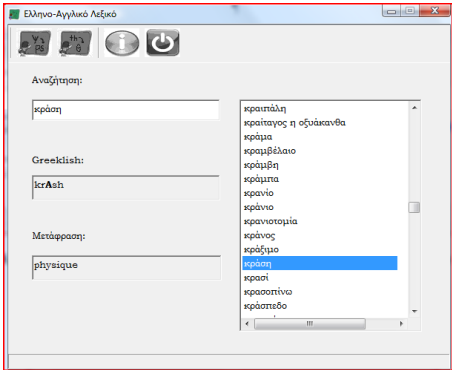

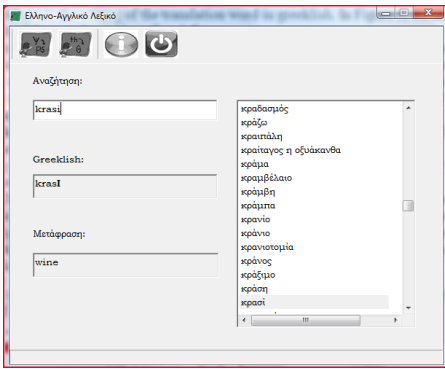**Fig. 9.**. The paronymous word κράση.
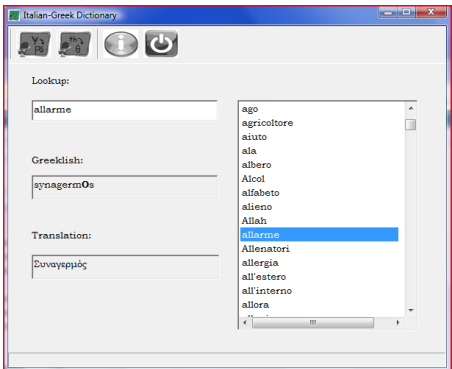

Fig. 10.. The word κρασί typed in greeklish

Fig. 11.. Example of an Italian-Greek Dictionary

Figure 8. and Figure 9. demonstrate the results for the paronymous words κρασί and κράση. Though the keyboard's language changes when the user switches from one dictionary to the other, he might accidentally type a Greek word with Latin characters. In Figure 10. it is shown that the Greeklish Converter transliterates the words in Greek and similarly as above, the same process takes place and the Greeklish and English translation of the typed word is being displayed.

4 Conclusions

The dictionary we present is a common general-use bilingual dictionary. Its main characteristic is that it can be used as assistance saoftware for learning the Greek Language via Greeklish. Each non-Greek user can understand the pronunciation of the words, because between the Greek and English meaning emerges the word typed in Latin characters.

The stressed letter being displayed in bold and capital makes the pronunciation of the word more clearly. The key-word search takes place either by selecting the word from the word list or by typing it in the appropriate field. The application is very easy and has a user-friendly interface. It can be used by individual user for business or communicating with Greek people when visiting Greece. It can also be used in the education process for understanding vocabulary, which is really important for learning a foreign language.

In the future, more words can be added in the already existing word list. There is the perspective of adding other languages' word lists except for English (as example in Figure 11. the Italian version), while the Greeklish transliteration is only connected with the Greek meaning. The possibility of using the application as a web service and also incorporating visual as far as phonetic intonation could be a prospective.

References

1. Androutsopoulos, J. 'Greeklish':Transliteration practice and discourse in a setting of computer-mediated Digraphia. Alexandra Georgakopoulou and Michael Silk (eds.) Standard Languages and Language Standards: Greek, Past and Present (2006).
2. Berns, M. S. Functional approaches to language and language teaching: Another look. In S. Savignon & M. S. Berns (Eds.), Initiatives in communicative language teaching. Reading, PA: Addison-Wesley (1984).
3. Comrie Bernard The World's Major Languages Oxford University Press (1990).
4. Freelang, http://www.freelang.net/
5. ISO 843 . Information and documentation – Conversion of Greek characters into Latin characters. International Organization for Standardization, from http://www.iso.org. (1997).
6. Holton, D. 'Oi neoellinikes spoudes sto Panepistimio tou Cambridge', Institouto Neoellinikon Ereunon Ethnikou Idrymatos Ereunon, Enimerotiko Deltio 32 (December 2007), pp. 96-99. (2007).
7. Hüllen, W. 'Foreign language teaching – a modern building on historical foundations', International Journal of Applied Linguistics Vol. 16 No. 1 (2006).
8. Joseph, B. 'Why Greek is one of The World's Major Languages', Discussion Note, Journal of Greek Linguistics 9. (2009).
9. Kanarakis, George (2009). The Diachronic Contribution of Greek to the Development of the English Language. In E. Close, G. Couvalis, G. Frazis, M. Palaktsoglou, and M. Tsianikas (eds.) "Greek Research in Australia: Proceedings of the Biennial International Conference of Greek Studies, Flinders University June 2007", Flinders University Department of Languages - Modern Greek: Adelaide, 309-320. (2009).
10. Karakos, A. Greeklish: An experimental interface for automatic transliteration . Journal of the American Society for Information Science and Technology, 54(11):1069-1074. (2003).
11. Koutsogiannis, D. & Mitsikopoulou, B. Greeklish and Greekness: Trends and Discourses of "Glocalness" . JCMC Vol.9 Issue1. (2003).

12. Marinis, T., Papangeli, A. & Tseliga, T. "Potizo" or "Potizw"? The influence of morphology in the processing of Roman-alphabeted Greek. In: Agathopoulou, E., Dimitrakopoulou, M. & Papadopoulou, D. (Eds). Selected Papers in Theoretical and Applied Linguistics, 17 International Symposium, English Department, Aristotle University. pp. 443-452. (2007).

13. Nation, P. 'Best practice in vocabulary Teaching and leraning', in Richards J. & W.Renandya (eds), Methodology in Language Teaching. An Anthology of Current Practice, Cambridge: Cambridge University Press, 267-272. (2002).

14. Sedgewick, R. "Algorithms in C++, Parts 1-4 (Fundamental Algorithms, Data Structures, Sorting, Searching)", 3rd Edition. Addison-Wesley, (1999).

15. Tsourakis, N. & Digalakis, V. "A generic methodology of converting transliterated text to phonetic strings case study: greeklish", In INTERSPEECH-2007, 1785-1788. (2007).

16. Greeklish Converter   http://greeklishconverter.vangos.eu/ (Last visit on 28 December 2012)

17. Greeklish Converter-Greek characters to Latin and Latin to Greek http://www.translatum.gr/converter/greeklish-converter.htm (Last visit on 28 December 2012)

18. Greeklish to Greek! http://services.innoetics.com/greeklish/ (Last visit on 28 December 2012)

19. All Greek to me! http://speech.ilsp.gr/greeklish/ (Last visit on 28 December 2012)

20. Google transliteration http://www.google.com/transliterate/ (Last visit on 28 December 2012)

21. I. Papaioannou, A. Karakos, A. Georgiadou. "Greeklish Converter v1.00" in Themes in Science and Technology Education, Vol. 3(1), pp. 49-67, 2010 (in Greek)