COMPLETE IPA KEYBOARD FOR iOS DEVICES

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ABSTRACT

The paper introduces a personally designed keyboard application for the iOS system. Its main premise is to combine the functionality of a regular iOS keyboard with the complete IPA alphabet, which is a novelty on this particular mobile platform. A brief list of the Keyboard's functionalities is introduced, alongside several further comments on the subject, general possibilities for the users, and the author's plans for further development of the project.

Keywords: CIPAK, phonetic keyboard, iOS, IPA alphabet

1. INTRODUCTION

The International Phonetic Association's alphabet is quite possibly the most versatile form of speech depiction. As opposed to all non-phonetic alphabets, in which spelling rules apply, the alphabet of the International Phonetic Association, hereby referred to as IPA alphabet, allows for a literal transfer of sounds to paper. One is then limited merely by the language in transcription, or its accent variations.

The IPA is used mainly in speech sciences and language learning: majority of foreign language dictionaries, e.g., Longman Pronunciation Dictionary [8], use it to present the pronunciation of words or expressions. It is present in the Unicode, and is therefore compatible with, and legible in, nearly all computer operating systems.

Despite its undeniable virtues and versatility, it is truly comprehended by a limited group of professionals, and its use is almost entirely constraint to the previously mentioned forms. Reasons for such a state shall not be touched upon within this paper, with exception to one possible cause: a complicated nature of digital IPA typing.

1.1. PC phonetic keyboards

Although featured in the Unicode, IPA alphabet does not have a keyboard per se. Two most popular methods for IPA computer writing is either 'copy and paste', or ascribing the regular keyboard buttons in texting programs like Microsoft Word with the IPA code, e.g., 't' + 'alt' + 'f' = theta, 'a' + 'alt' + 'e' = ash, etc. There are also several 'virtual' keyboards, e.g., Unicode Phonetic Keyboard [5], that allow for a point-and-click writing.

Figure 1: The Unicode Phonetic Keyboard for Windows.

Also worth mentioning are the 'online' keyboards, e.g., IPA Full Online Keyboard [6]. Those are especially useful whilst someone is in need of detailed phonetic writing, but does not wish to install any additional software on ones PC or mobile device. The main drawback to this solution is that the typing method is limited to the mouse, thus making the writing rather annoying after longer periods of time.

**Figure 2**: The Online Keyboard: Full IPA.

1.2. Phonetic keyboards on mobile devices

Writing with IPA code on mobile devices, such as tablets or smartphones, is an even more complicated matter due to the inability of attributing keyboards to IPA letters. However, in addition to the aforementioned online keyboards, several developers recently introduced keyboard add-ons with IPA alphabet, e.g., English Phonetic Keyboard [3], or PhoneticFont [2]. The users simply switch from regular keyboard to the one with IPA, which enables them a simultaneous phonetic and non-phonetic writing.

Unfortunately, these add-ons are considerably limited, i.e. they do not contain the complete IPA alphabet, with all its verbs, consonants, suprasegmentals, etc., but rather focus on characters necessary for phonological transcription of English. These keyboards also lack philosophy behind the location of particular keys, which are either distributed as vowels and consonants, or simply by default.

Figure 3: English Phonetic Keyboard for the iOS.
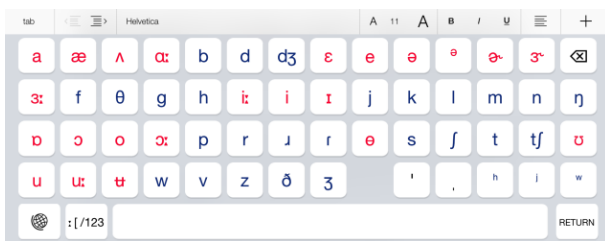
Thus far, there has only been one iOS-based keyboard containing the complete IPA alphabet, namely Dawid Pietrala's IPA Keyboard [4] launched in early 2015. Although the application itself is well developed, we believe there is plenty room for improvement.

1.3. Complete IPA Keyboard

This paper introduces a complete International Phonetic Alphabet keyboard for iOS compatible devices (e.g., iPad, iPhone). The Complete IPA Keyboard is a program with ambitions to surpass the limitations of the aforementioned solutions, i.e., to enable the use of all IPA characters and to fit them into a functional, intuitive keyboard form. Its second, yet equally important, ambition is to enable free and widespread use of the IPA to a wide audience of professionals and non-professionals alike.

As the iOS keyboard layouts differ slightly depending on the device (e.g., the iPhone set contains less repetitions of the same keys in order to save space), the paper primarily follows the graphic design of the iPad version of the Application.

2. FUNCTIONALITY

The Complete IPA Keyboard, hereby referred to as CIPAK, has been released on the Apple App Store in June of 2015 (Version 1.0). It is free of charge and eligible for future updates. The program is compatible with iOS version 8.0 or higher. Its installation process is fairly uncomplicated, one simply downloads the content which appears as an icon, and afterwards adds the CIPAK to the keyboard list. The icon itself, additionally to acting as the source file, also serves as a know-how manual.

2.1. Key layout

As it was previously mentioned, CIPAK strives to be intuitive. Instead of arranging the sounds, diacritics, and suprasegmentals one after another in an orderless fashion, they were located on the basis of their most matching standard Latin keyboard counterpart. For example: velar plosive [k] is placed where the consonant 'k' is typically located, bilabial nasal [m] represents the regular 'm', etc. This arrangement is meant to speed up the user's writing and, as a result, make it more natural. Please note that this refers mainly to the first and third page of the CIPAK.

Figure 4: Complete IPA Keyboard's first page layout.
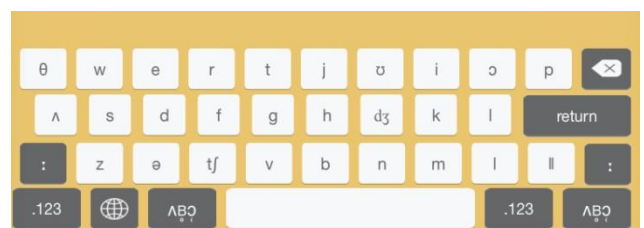
The standard IPA layout for key location was also considered, yet it was rejected mainly due to the fact that, although functioning well in tables and charts, it would be fairly difficult to fit them into a keyboard form. As presented in the Handbook of the International Phonetic Association [7], the complete traditional IPA alphabet requires about 7 to 9 tables and charts to be represented, which would result in the same amount of pages within the keyboard if this layout was to be used. Such solution, and its scope alone, might prove troublesome for regular writing. This form is also far from being 'intuitive' to a non-proficient phonetic symbol user.

Obviously, due to International Phonetic Alphabet's unique nature, retaining the exact

standard set of Latin script letters would not necessarily prove functional to most of everyday users. Therefore, the letter order of the first page was prioritised in order to reflect the phonology of English: arguably the lingua franca science [1]. For example, voiceless uvular plosive [q] is used mostly in Arabic, yet it does not occur in English or other popular languages (e.g., Spanish or Mandarin Chinese); 'Q' was therefore replaced by a sound arguably graphically similar, namely the theta. As both narrow and broad phonetic transcriptions do not use traditional punctuation, the ',' and '.' buttons were replaced by '|' and '||'. Also, as there are no capitals in phonetic transcripts, the shift buttons were obsolete, and were replaced by ': '. All of the above choices were also intended to keep the layout as simple as possible.

2.2. Key expansion

CIPAK's keys, in addition to the letter in their graphic representations, contain up to ten extra signs. As with the standard iOS keyboard, each key expands after being pressed for about one second and longer. One may then choose the secondary sign by continually holding the key and moving the finger towards the designated sound. The proximity of the expansions in relation to their base was prioritised by the phonemes most frequently used in English.

Figure 5: Example of an expanding CIPAK key.

2.3. Segmentation

The Keyboard itself is composed of three pages. The first page fits the most frequently used letters and the punctuation necessary for a regular sentence writing. The second page intends to continue the graphic design of the former, but also adds a wider variety of vowels, consonants, diacritics, and suprasegmentals.

Figure 6: CIPAK's second page layout.
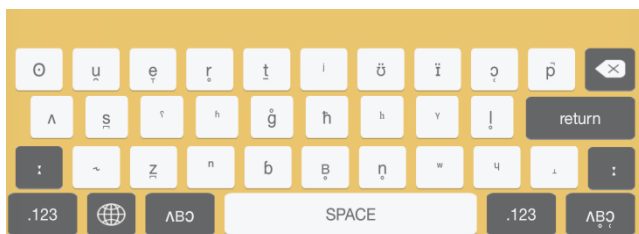
Last page is dedicated entirely to punctuation, letters, and additional suprasegmentals. It was also intended to maintain a similar layout to the one of a standard iOS keyboard. For example, the 'traditional' [ABC] button was replaced with a 'phoneticised' [ABƆ].

Figure 7: CIPAK's third page layout.

3. USABILITY

Usability of the CIPAK is fairly satisfactory. The keys themselves are allocated in order to resemble the QWERTY Latin script layout as far as possible. The graphic design of the keys remained almost identical to that of Apple software's: the shape of the keys was kept nearly unchanged, the letters expand with a genie effect.

3.1. Graphic design

The colour scheme of the CIPAK has brought some major changes in comparison to the standard Apple keyboards. The regular keys are kept white; the navigation, return, space, and backspace buttons were given a dark grey colour; the background is now dark yellow. The choice of colours was not coincidental: we decided to give the keyboard a palette clearly resembling the IPA's signature colour set. Whilst retaining all usability features, it allows its users to quickly asses which keyboard they are currently using.

3.2. Interchangeability

Transition from the CIPAK to any other keyboard in requirement, e.g., German or English, is as seamless and intuitive as it is with any other, due to lack of significant changes in the standard graphic design. After holding the globe icon 🌐 for one second or longer, one may choose any of the preset keyboards in addition to the CIPAK.

All this, in addition to the previously mentioned functionalities like key allocation and simple layout, is meant to add to a generally positive feedback from CIPAK's use.

4. FURTHER DEVELOPMENT

Two standard English iOS keyboard options were omitted in the CIPAK. Firstly, what is unfortunate, CIPAK does not support dictation. As it would have to simultaneously cope with all sounds and world languages, the dictation would not have been accurate, and we cannot yet cope with such a complicated matter with the present-day developer technologies.

Secondly, the 'Split' and 'Unlock' options are missing. To some devoted fans of these typing methods it might be perceived as quite of a drawback. Please note, however, that this option is scheduled for the next update in fall of 2015 (Version 1.1).

An unquestionable drawback of the CIPAK as a whole is its sole limitation to the iOS system. Unfortunately, neither Android, nor mobile Windows versions of the Program were available by the time of this publication. As it is a non-profit project, the resources assigned to the CIPAK would not have allowed for a simultaneous launch of the Keyboard on all the mobile platforms. It was therefore decided that, due to its uncomplicated programming nature and a world-wide popularity, the iOS system will be the primary choice. The Complete IPA Keyboard is scheduled to be released on the remaining mobile operating systems in early 2016. These releases are also planned to be free for all users.

5. CONCLUSIONS

One of the main incentives to kick-start the CIPAK project was to make writing in IPA easier. It was also meant to encourage both scholars and non-scholars to comprehend the IPA alphabet as a whole, and to use it more frequently in the process. The fact that the Application is free of charge can act as an additional encouragement to the users who set foot in phonetics writing (n.b. it is the only free phonetic keyboard available on the iOS market).

As some programming and usability glitches are unavoidable, the CIPAK is scheduled to receive its first updated around late 2015, after receiving first feedback from users.

The Program enables iOS users access to the complete set of IPA letters, diacritics, and suprasegmentals for everyday professional and casual writing, and accomplishes it without incorporating many additional changes to the regular layout of a standard iOS keyboard.

6. REFERENCES

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