

The impact of orthography on the acquisition of L2 phonology: inferring the wrong phonology from print

Photini Coutsougera, University of Cyprus

1 The orthographic systems of English and Greek The aim of this study is to investigate how the deep orthography of English influences the acquisition of L2 English phonetics/phonology by L1 Greek learners, given that Greek has a shallow orthography.

Greek and English deploy two fundamentally different orthographies. The Greek orthography, despite violating one-letter-to-one-phoneme correspondence, is shallow or transparent. This is because although the Greek orthographic system has a surplus of letters/digraphs for vowel sounds (e.g. sound /i/ is represented in six different ways in the orthography); each letter/digraph has one reading. There are very few other discrepancies between letters and sounds, which are nevertheless handled by specific, straightforward rules. As a result, there is only one possible way of reading a written form. The opposite, however, does not hold, i.e. a speaker of Greek cannot predict the spelling of a word when provided with the pronunciation.

In contrast, as often cited in the literature, English has a deep or non transparent orthography since it allows for the same letter to represent more than one sound or for the same sound to be represented by more than one letter. Other discrepancies between letters and sounds - also well reported or even overstated in the literature - are of rather lesser importance (e.g. silent letters existing mainly for historical reasons etc). In terms of numbers, in the English orthographic system there are fewer characters/letters than corresponding sounds while in the Greek system there are more characters/letters than corresponding sounds.

The two orthographies differ in principle. The Greek orthographic system has a *phonemic* basis: the only role of Greek characters is to represent sounds. The English orthography, on the other hand, is largely based on a *morphophonemic* principle. The stem of morphologically related forms, such as e.g. 'method' and 'method-ical', (i.e. stem {method}) is spelt identically in both, although pronounced differently as [meθəd] and [me'θədɪk^{əl}] respectively. The same may apply to alternating consonant or vowel sounds in morphologically related forms: e.g. the underlined letter <c> in 'elastic / elasticity' corresponds to sounds [k] and [s] respectively or the underlined <i> in 'divine / divinity' corresponds to sounds [aɪ] and [ɪ] respectively. In the first case, it is entirely predictable which syllables will contain a reduced vowel (ə) as this depends upon absence or presence of stress. In the second case, the alternation between [k] ~ [s] depends on the features of the following suffix-initial vowel. In the third case, [aɪ] is shortened by the *trissyllabic shortening rule*, which applies in order to shorten the third syllable back from the end when this is followed by two syllables, of which the first is unstressed.

The primary aim of orthography in the above cases is that the morpheme has the same visual representation. This is also known as lexical spelling. As Carney 1994 explains "The English writing system is not simply concerned with mapping phonemes on to letters. To a large extent it tries to offer the reader a constant spelling for a morpheme in spite of the varying pronunciation of the morpheme in different contexts." (Carney 1994: 18). Besides, perfectly predictable alternations,

internalised in the form of rules by speakers of English, are shared among them and their reflection in the orthography may be redundant (see Chomsky & Halle 1968: 49). Not all discrepancies between letters and sounds in the English orthography can be accounted for on these grounds, but it is not the aim of this paper to take a stance as to how optimal the English orthography is. This brief introduction simply aims to delineate the fundamental differences between a largely morphophonemic and a purely phonemic orthography.

2 The phonological systems of English and Greek English and Greek have two considerably different phonetic and phonological systems with differences ranging from their phonemic inventories to their prosodic structure and intonation systems.

L2 English, especially from a phonetic/phonological point of view, is not an 'easy language' for L1 Greek learners. Space limitations prevent us from reporting each problematic area in detail but a brief comparison of the two systems could be enlightening. With respect to their phonemic inventories, the two languages mainly differ in their vowel systems, both in terms of inventory size and complexity. Greek has a basic, unmarked five-vowel system with its vowels evenly distributed in the periphery of the vowel space (see Arvaniti 1999, Fourakis et al 1999), unlike the complex and highly marked English vowel system of over twenty vowels (depending on the dialect), which comprises both monophthongs and diphthongs and marks length distinction in the former (see Ladefoged 2006).

The Greek learner of English usually accommodates these vowels with the five Greek ones. S/he produces all English vowels with the same length and comprehends the diphthongs as two syllables. Mid central vowels in particular constitute a major problem.

The two languages differ prosodically, too (for an account of Greek stress, see Revithiadou 2006). Although both trochaic, Greek is 'syllable-timed', unlike English, which is 'stress-timed'. In Greek, unstressed syllables of content words have roughly the same duration as stressed ones and are not reduced to schwas. The same applies to function words, which do not have weak forms. As a result, linking stress to full vowels and absence of it to reduced vowels is a totally unfamiliar concept to L1 Greek learners, with the resulting inevitable impact on fluency.

3 Inferring the wrong phonology from print Wells (2005: 4) points out that "many of the oddities of NNS pronunciation of English are due to inappropriate inference from the spelling. The NS spoken form of *marvellous* is [mɑ:(r)v(ə)ləs]. NNSs who say ['mavelus] or the like, with [u] in the final syllable, are doing so purely on the basis of (mis)interpreting the spelling", and goes on to say that such mispronounced forms may be due to defective teaching.

Inappropriate inferences of this kind can only be made by learners of English who assume that the orthography of English is purely phonemic. L1 Greek speakers of English largely make this assumption following a grapheme-to-phoneme (letter-to-sound) conversion.

A grapheme-to-phoneme conversion may become clearer if we look at examples where graphemes are treated as having a constant reading, as they do in shallow orthographies. L1 Greek learners assume that grapheme <o> (corresponding to mid back vowel /ɔ/, which is slightly higher than the English RP /ɔ̃/ and shorter) has the constant reading [o]. As a result, they will say: [o]ven, [o]pen, t[o]p, [o]ral, w[o]rd,

petr[o]l. The same applies to grapheme <a>¹: s[e]d, f[ɛ]ther, p[ɛ]rents, im[ɛ]ge, loc[ɛ] are pronounced with the Greek low central [ɛ]. Needless to say that graphemes <α> and <o> have a constant reading in the Greek orthography.

Also all unstressed suffixes (e.g. -us, -um, -tion, -ure, -ous, -ful, -ate, -age etc) are typically pronounced with full vowels (which may not even appear in the English vowel inventory):

Orthography: focus, medium, button, nature, famous, playful, delicate, image

Transcription: ['fokus], ['mium], ['beton], ['neitsur], ['feimus], ['pleiuful], ['delikeit], ['imetz]

The ending of 'visitor' is distinguished from that of 'manner': ['vizitor] vs. ['mener].

This is not limited to unstressed suffixes only. All unstressed syllables, irrespective of their position within a word, are pronounced with a full vowel:

Orthography: about, exact, catalogue, theory, seven etc

Transcription: [e'bɛ.ut], [e'gzɛkt], ['kɛtelog], ['θiori], ['seen] etc

Moreover, the use of digraphs for diphthongs reinforces the idea of L1 Greek learner that b<oy>, pl<ay>, <ea>r, <ou>t etc. constitute two syllables. S/he actually typically overapplies this to digraphs corresponding to single sounds, such as e.g. suffix -ey, which is pronounced [ei]: e.g. ['volei], volley.

With respect to characters corresponding to consonant sounds, it is not at all uncommon for various silent letters to be pronounced but the most frequent error is that of digraph <ng> (as in suffix -ing) representing phoneme /ŋ/, which is pronounced [ŋg]: e.g. ['reiting], writing.

The above constitute a small sample of typical spelling-inferred errors made by L1 Greek learners of English. The examples deployed are empirical as they are derived from observation. It must be noted that research in the area of L2 oral English as spoken by L1 Greek learners is extremely limited.

4 L2 English phonology acquisition and the bias of orthography There is a large amount of research concerning the area of L1 reading and writing acquisition as well as the effect of orthography on cognitive processing. Similar research in L2 is mostly concerned with the impact of L1 orthography on L2 reading acquisition and less so with the relationship between orthography and cognition.

It has been proposed by different researchers (among others, Wagner & Torgesen 1987, Garton & Pratt 1998) that language speakers need to have reached phonological awareness before they start to read and write. This, of course, applies in L1, where children are phonologically aware before they start to read and write. In the EFL classroom, however, the teaching of L2 English involves reading and writing from the very start and before any phonological awareness is reached. In other words, the learner starts acquiring L2 phonology and learning how to read at the same time. Additionally, even the youngest L1 Greek learners of English (grade 3 of primary school) will have learnt how to read and write in their L1, i.e. in a shallow orthography, before they start L2 English. Beginner learners are therefore *forced* into reaching some kind of phonological awareness so that they are able to start reading

¹ In examples like 'lane', pale' etc, [ɛɪ] is correctly inferred from the presence of silent <e>.

and writing. The principal way through which this phonological awareness can be achieved is through exposure to teacher input, which, in most cases, is non native English. At the same time, learners urgently need to establish grapheme-phoneme correspondences in order to decode writing.

There seems to be an agreement in the literature that all beginner readers generally rely on grapheme-phoneme correspondences in order to decode writing, more so than competent mature readers. Subsequently, they will naturally work towards developing good orthographic decoding skills and establishing a visual orthographic lexicon. Also, Koda (1988) has discovered that “phonological coding strategies used in L1 processing are transferred to L2 processing” and that a strong relationship holds between orthography and cognition. In that case, L1 Greek learners of English would simply have to transfer L1 strategies to L2.

It is important to note that the L1 English speaking beginner reader has been found to need twice as much time to develop basic decoding skills than a beginner reader of a shallow orthography (Seymour et al 2003). Naturally, mapping Roman letters to English phonemes is a complicated job, which takes more time than mapping Greek letters to Greek phonemes. The L1 Greek learner of English does not realise this fact, due to a lack of phonological awareness. S/he is simply forced to generate phonology from orthography by mapping graphemes onto phonemes in true shallow orthography style, in order to cope with reading and writing. This conclusion is in agreement with Bassetti (2006), who has proposed that L2 orthography affects the mental representations of L2 phonology in beginner L2 learners.

5 Teaching of spelling acquisition One would expect that special attention would be paid to teaching these two fundamentally different orthographies in the EFL classroom in Greece and Cyprus². On the contrary, spelling acquisition is entirely ignored. More generally, the area of EFL pronunciation teaching in Greece and Cyprus is rather obscure and there is a severely limited amount of research in it (see Sifakis & Sougari 2005). With respect to Cyprus, Kyprianou (2006) has discovered that L2 English pronunciation teaching in public secondary schools is largely neglected and discriminated against syntax and vocabulary.

Currently, there seems to be a need for the pronunciation component to establish its place in the language curriculum of the EFL classroom in Greece and Cyprus and for a sound pronunciation methodology to be developed. An essential part of it must be *spelling acquisition*, which must be carefully designed and taught, so that it will no longer contribute towards generating the wrong L2 English phonology.

6 References

- Arvaniti, Amalia (1999) Illustrations of the IPA: Modern Greek. *Journal of the International Phonetic Association*, vol. 19, pp. 167-172.
- Bassetti, Benedetta (2006) Orthographic input and phonological representations in learners of Chinese as a foreign language. *Written Language & Literacy*, vol. 9, No 1, pp. 95-114(20).
- Carney, Edward (1994) *A Survey of English Spelling*. London: Routledge.
- Chomsky, Noam & Halle, Morris (1968) *The Sound Pattern of English*. New York: Harper & Row.
- Fourakis, Marios, Botinis, Antonis & Katsaiti, Maria (1999). Acoustic characteristics of Greek vowels. *Phonetica*, vol. 56, pp. 28-43.

² The contents of this paper largely apply to L1 Cypriot Greek learners of English, too.

- Garton, Alison & Pratt, Chris (1998) *Learning to be Literate: the Development of Spoken and Written Language* (3rd edn). Oxford: Blackwell.
- Koda, Keiko (1988) Effects of L1 orthographic representation on L2 phonological coding strategies. *Journal of Psycholinguistics*, vol. 18, No 2, pp. 201-222.
- Kyprianou, Marianna (2006) *Teaching English Pronunciation: The Case of Cyprus*. Unpublished MA Diss., University of Cyprus.
- Ladefoged, Peter (2006) *A Course in Phonetics* (5th Ed.). Boston: Thomson/Wadsworth.
- Revithiadou, Anthi (2006) Colored turbid accents and containment: A case study from lexical stress. *ROA 852-0706*. [<http://roa.rutgers.edu/view.php3?id=1197>].
- Seymour, Philip H. K., Aro, Mikko & Erskine, Jane M. (2003) Foundation literacy acquisition in European orthographies. *British Journal of Psychology*, vol. 94, No 2, pp. 143-174(32).
- Sifakis, Nicos & Sougari, Areti-Maria (2005) Pronunciation Issues and EIL Pedagogy in the Periphery: A Survey of Greek State School Teachers' Beliefs. *TESOL Quarterly*, vol. 39, No 3, pp. 467-488.
- Wagner, Richard K. & Torgesen, Joseph K. (1987) The nature of phonological processing and its causal role in the acquisition of reading skills. *Psychological Bulletin*, vol. 101, pp. 192–212.
- Wells, John C. (2005) Goals in teaching English pronunciation. In Dziubalska-Kołaczyk, K. & Przedlacka, J. (Eds), *English Pronunciation Models: A Changing Scene*. Bern: Peter Lang.
[Also available at http://www.phon.ucl.ac.uk/home/wells/poznan03_wells.pdf].