

LENTICULAR PRINT MAPS IN TEACHING IRISH MUTATIONS
ON INITIAL CONSONANTS

Dennis Edler, Björn-Jan Schmidt and Nils Lammert-Siepmann. Geography Department: Geomatics/Remote Sensing Group. Ruhr-University Bochum, Bochum, Germany

Introduction

The lenticular foil technique is widely known from the gimmicks in snack and cereal boxes. By today Elvis Presley, Hulk Hogan, Diego Maradona, Arnold Schwarzenegger as well as some jolly green leprechauns, for sure, have been printed on lenticular flip images showing them, usually, in two different ‘heroic’ or funny postures. This visualisation technique is currently “experiencing a renaissance” (Dickmann, 2010, p. 250). At present, its applications are no longer limited to products of commercial art only: It belongs to the modern visualisation methods of thematic cartography (Dickmann et al., 2009; Buchroitner et al., 2005; Buchroitner et al., 2007). Thematic cartography can enter the Irish language classroom when introducing the rules of Irish consonant mutations, i.e. *urú* (eclipsis) and *séimhiú* (lenition), in combination with geographic names (Edler, 2010) – see: Corcaigh (Cork), **i**gCorcaigh (in Cork, *urú* is caused by *i*), **ó**Chorcaigh (from Cork, *séimhiú* is caused by *ó*). The rules of *urú* and *séimhiú* belong to the difficult peculiarities

of the Irish language and, thus, require studying with care. Lenticular print maps, in general, are interesting and useful teaching media to motivate and support students of Modern Irish – and of foreign languages in general.

The Principle of Lenticular Print Maps in a Nutshell

“The lenticular foil technique is a stereographic visualisation tool laid out on a picture.” (Dickmann, 2010, p. 250). Apart from printed flip images, which are in the focus of this paper, there are other lenticular products such as analog as well as digital 3D images and animations (Johnson and Jacobsen, 2005; Dodgson, 2005). In the creation of printed flip images, two or three existing images are dissected into various small stripes. In further steps, these stripes are systematically merged into one image, printed and combined with a transparent foil consisting of an array of half-cylindrical lenses. The final outcome is a single printed product of lenticular manufacturing uniting two or even three different images. Depending on the viewing angle, different stripes of the image shift into the focus of the lenses. Thanks to this optical flip effect, the different original images – in this case maps – can be seen (Dickmann, 2010).

Examples

If, in Modern Irish, a noun follows the preposition *i* (in) and begins with *b, c, d, f, g, p,* or *t*, its initial letter is eclipsed: *mb, gc, nd, bhf, ng, bp* and *dt*. In other words, the unvoiced initial consonants are replaced by the corresponding voiced ones whereas the voiced initial consonants are substituted by the corresponding nasals. In the language classroom, this rule of consonant mutation (*urú*) can be perfectly introduced using Irish place names illustrated in maps. As lenticular flip maps allow the merging of two different maps into one map, the flip effect can be used to highlight the grammatical and orthographic changes happening to the place names. Thus, by flipping the

maps in their hands, the students can read a map of Ireland with either the place names as they are or with the eclipsed names after the preposition *i* (Appendix 1, figure 1 & 2).

Another Irish preposition often combined with geographic names is *ó* (from). This tiny word causes that some initial consonants of the following word – i.e. *b, c, d, f, g, m, p, s,* and *t* – are lenited: *bh, ch, dh, fh, gh, mh, sh* and *th*. Lenition (*séimhiú*), sometimes referred to as aspiration, means that a consonant is pronounced without a stop of the air flow. In phonological terms, the plosive is substituted by its corresponding fricative. Whenever lenition occurs, it is not only linked to phonetic mutations but also to changes in terms of grammar and orthography. To visualize these changes, another example of a lenticular flip map was designed and produced. (Appendix 2, figure 3 & 4).

Aside from linguistic knowledge, lenticular maps also impart geographical knowledge. In fact, the maps can be used to study the approximate locations of the major cities in the Republic of Ireland (*Poblacht na hÉireann*) and Northern Ireland (*Tuaisceart Éireann*). In addition, to ‘build a bridge’ between the Irish placenames and their anglicisations, another pair of maps (Appendix 3, figure 5 & 6) has been interlaced and rendered into a printed map which is based on the lenticular foil technique.

This example allows students the study of space-related vocabulary. While this lenticular print map is an example of “vocab-mapping”, the other maps shown in this paper are rather focused on the visualisation of orthographic changes caused by phonetic peculiarities – thus, they are products of “ortho-mapping” (Edler & Lammert-Siepmann 2010, p. 10).

Summary – The Potential of Lenticular Flip Maps

The examples given in chapter 3 indicate the potential of lenticular print maps for the language classroom. Whenever geographic names are changed according to language-specific rules and peculiarities, this visualisation

technique can be used to produce interesting teaching media. So, the orthographic consequences of *an t-Urú* and *an Séimbiú* can be simply visualized in printed lenticular flip maps. In addition to Modern Irish, there are other Celtic languages in which the spelling of placenames is modified in some cases. In the Welsh language (*Cymraeg*), the name of Wales is *Cymru*. If a Welsh speaker wants to express that he is in Wales, he may use the words *Yr wyf yng Nghymru*. It is obvious that, here, the original placename *Cymru* mutated to *Nghymru*. In Scottish Gaelic (*Gàidhlig*), the construction of the genitive, for instance, may have an impact on placenames. The Gaelic name of the University of Glasgow, for instance, is *Oilthigh Ghlaschu*. Here, the initial consonant of “Glaschu” is lenited by adding an *h*. Apart from the Celtic languages, there are also some other European languages in which geographic names are subject to rules of mutations. A list of examples is given in table 1.

Language	Original Placename	Placename in sentence	English translation
Czech	Praha	Chodím do Prahy.	I go to Prague.
Estonian	Tallinn / Viljandi	Nad lähevad Tallinnast Viljandisse.	They go from Tallinn to Viljandi.
Finnish	Helsinki	Hän on Helsingissä.	She is in Helsinki.
Hungarian	Magyarország	Én megyek Magyarországra.	I am going to Hungary.
Latvian	Rīga	Viņš ir Rīgā.	He is in Riga.
Lithuanian	Klaipėda / Vilnius	Mes einame iš Klaipėdos į Vilnių.	We go from Klaipėda to Vilnius.
Polish	Warszawa	Jedzie do Warszawy.	He travels to Warsaw.
Russian	Москва	Я в Москве.	I am in Moscow.

Table 1: Inflections of placenames in other European languages

Printed lenticular flip maps have been used in a beginners’ module of Modern Irish at the Ruhr-University Bochum (RUB), Germany. The

philosophy of the module is to teach the Irish language while introducing students to Ireland’s culture and geography. According to the students, these maps are useful aids to study the orthographic consequences of Irish mutations on initial consonants.

A selection of self-created lenticular maps for the teaching of the Irish language is available at RUB’s Geomatics Group. If you are interested in getting further information about the existing maps or in designing your own lenticular products, you are kindly invited to contact the authors. To design lenticular flip maps, your image files can be saved in common raster formats such as jpg or tiff. The individual image files require a minimum resolution of 300 dpi.

The illustrations shown in the appendix are printed as greyscale images. The coloured versions of the figures, which are the actual images of the lenticular maps that have been used in the Irish language classroom, can be accessed online:

<http://geo-lingo.geomatik.rub.de/lenticular/>

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Appendix 1

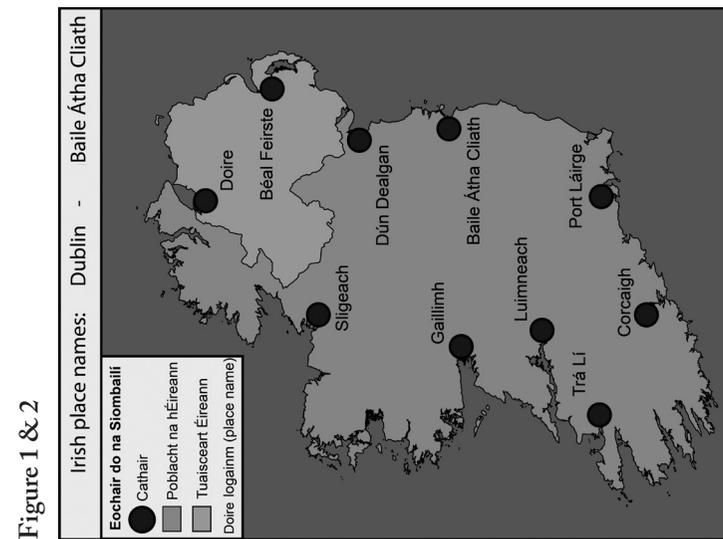
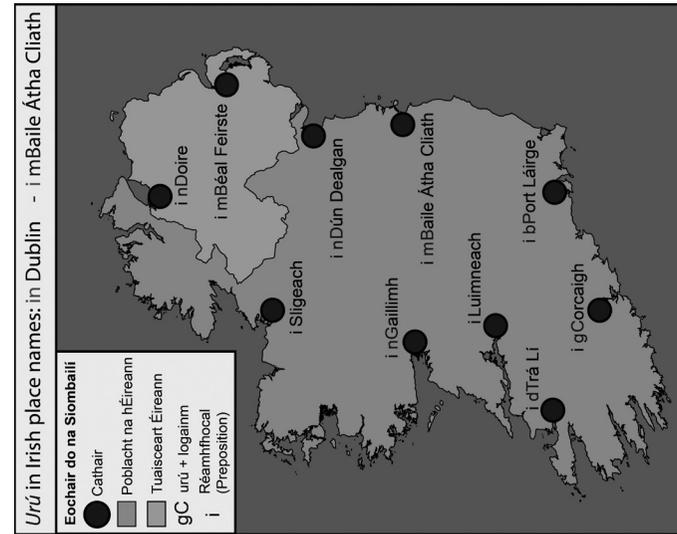


Figure 1 & 2

Figure 1 & 2: Two maps of a lenticular flip map – urú in Irish place names

Appendix 2

Figure 3 & 4

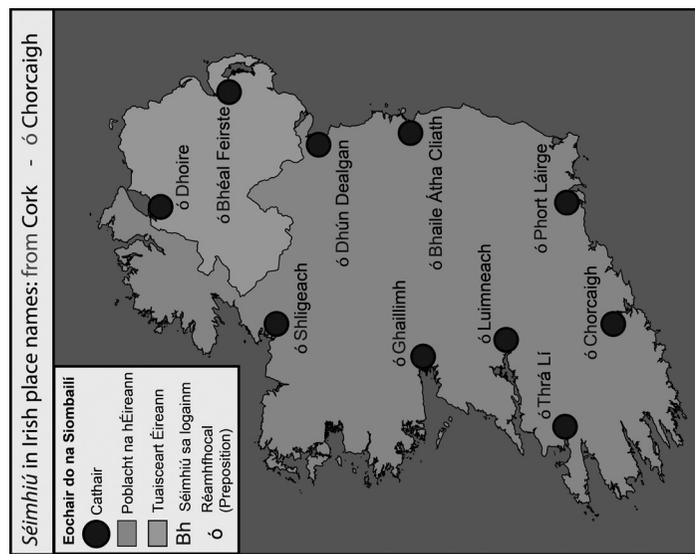
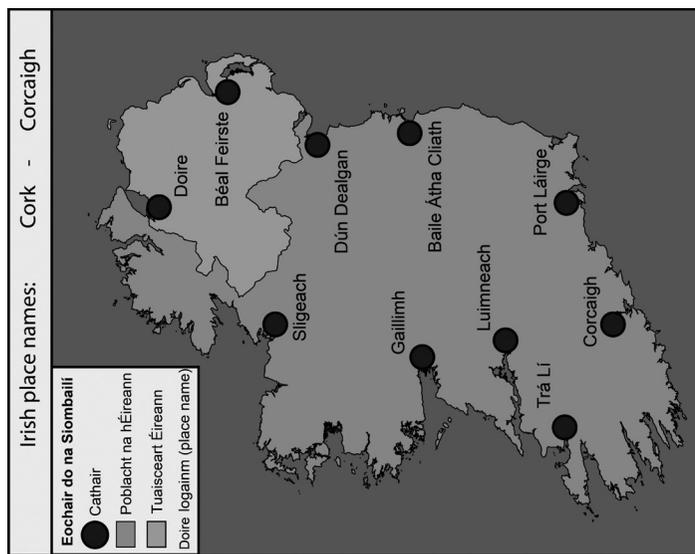


Figure 3 & 4: Two maps of a lenticular flip map – séimhiú in Irish place names

Appendix 3

Figure 5 & 6

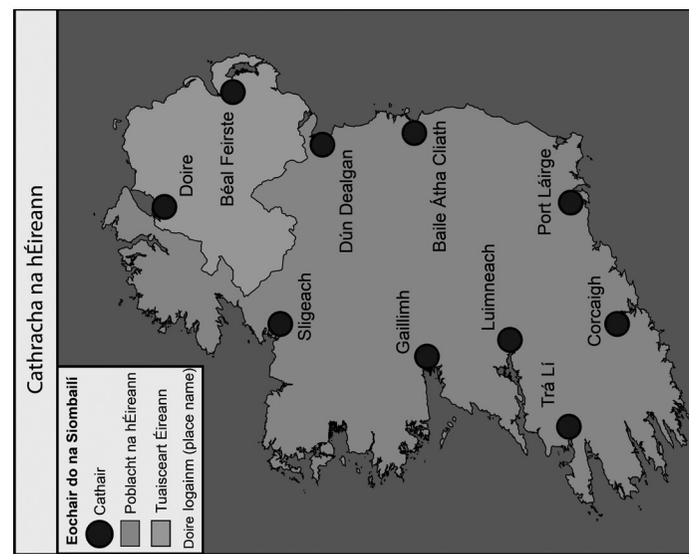
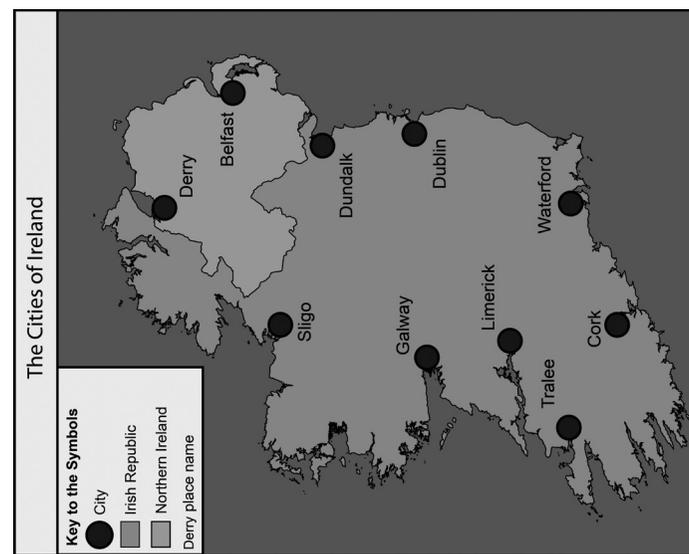


Figure 5 & 6: Two maps of a lenticular flip map – English and Irish place names