UIB – Irish Braille in Progress

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**Historical Background**

Gaelic, or the Irish Language, is a minority tongue although constitutionally it is the first language of the Republic of Ireland and a recognised minority language in Northern Ireland, England and the European Union. It has the oldest vernacular literature in Western Europe. The earliest existing examples of the written Irish language are [Ogham](https://en.wikipedia.org/wiki/Ogham)1 inscriptions dating from the 4th century. Extant manuscripts do not go back farther than the 8th century. Two works written by [Saint Patrick](https://en.wikipedia.org/wiki/Saint_Patrick)2, his *Confessio* and *Letter to* [*Coroticus*](https://en.wikipedia.org/wiki/Coroticus)3 were written in Latin some time in the 5th century, and preserved in the [Book of Armagh](https://en.wikipedia.org/wiki/Book_of_Armagh)*.*4

Decline in the use of Gaelic began in the Elizabethan Era and continued through to the Great Famine of the mid 19th century which almost halved the population of the island of Ireland. Revival began in the latter years of the 19th century in educated, nationalist circles but unfortunately this brought about the politicisation of the language which further abetted its decline.5

Prior to and with independence in 1922, came compulsory classes in the language at both Primary and Secondary level education and inclusion as a Matriculation subject at university level. However, the success of these efforts was frustrated by the teaching methods as, in most instances, explanations and translations were given in the same tongue and the subject was not treated as a separate ‘new’ language for students, with the result that for at least 3 generations, school leavers never again spoke Irish save for a few stock phrases, some best left unuttered, and a rudimentary knowledge was enough to gain access to State employment.

If the written Irish language was in such a state, then what chance had the Braille version? The English Braille Codes had been used from the 1860s onwards but in the early 1930s the Irish Association for the Blind established the Gaelic Braille Type commission to systematise Gaelic Braille signs. The members of the commission were J.P. Neary, Helen McCauley and Professor Carl Gilbert Hardebeck.

J.P. Neary was involved in projecting Gaelic Braille and was also reading French Braille. Helen McCauley was the National Council for the Blind of Ireland’s first blind home teacher. C.G. Hardebeck, London born of German-Welsh parents, had an avid interest in Irish music, melodies and poetry and amassed an invaluable collection of such materials from native musicians, both sighted and blind, around the country and especially along the western seaboard where the Gaelic language survived. Blind himself, he recorded his store of material in Braille on a stylus as he listened to the musicians and bards over long periods.6

The Irish language at that time and until the second half of the 20th century, consisted of an alphabet of 18 letters A B C D E F G H I L M N O P R S T U, the omissions being J K Q V W X Y Z. The five vowels were also stressed with an acute accent sign Á É Í Ó Ú and 9 of the consonants B C D F G M P S T (excluding H L N R) could also be aspirated with a lenition (single dot) above according to case and declension. It was initially proposed to use the first 10 signs of the French Braille alphabet for the first 10 letters of the Irish alphabet, meaning that the J symbol would represent L, and the first 8 signs of the second line for the remaining 8 letters of the Irish alphabet, thus, K for M, L for N … and so on but thankfully this system was rejected as it was rightly pointed out that Gaelic Braille readers would be cut off from Braille literature in other languages. The letters were represented by the English Braille alphabet with the extra consonants omitted.

The French influence however continued in the choice for the 5 accented vowels and the last 5 accent signs of the third line were used (these of course are the same as the English AND FOR OF THE WITH groupings). Similarly, with the aspirated consonants, dot 6 was added to the 9 letters B-J. As contractions were not used in the Gaelic Braille there was no problem and J-dot 6 formed a W which was not a letter of the Irish alphabet. Finally, the French question mark was the only difference from the English punctuation.7

As an aside, the 1937 Braille version of “Simple Lessons in Irish Braille”8 invents braille sign combinations to describe pronunciation particularities (i.e. ch/hyphen/vowel described a long vowel sound). This, incidentally, is not unlike the UEB accent signs to denote length and pronunciation of particular letters. It is also notable how relatively quickly the then newly introduced Irish Braille code from 1935 was applied to the braille transcription of “Simple Lessons in Irish Braille” in 1937. Again, not dissimilar to the implementation of UEB, the organisation driving the change in code was the same which provided the Irish braille transcriptions.

Early Irish educational material from the mid-1930s used the 14 symbols quite successfully in the Grade One Irish Braille of the day. This system had a short enough life however, as the powers that be in the sighted print world decreed in the mid-1950s that the lenition would be abolished and replaced with the little used letter H. This was probably due to the fact that typewriters could not reproduce these characters and specially adapted printing presses were scarce enough too. Thus, a generation of schoolchildren who had learned to write in both English and Gaelic fonts suddenly found themselves re-learning the Irish language in both font and spelling.

In Braille, the symbols for the aspirated consonant were discarded and the letter H symbol was simply added to the desired consonant; effectively Grade One Braille with the exception of the 5 accented vowels.

The two schools for the Blind and braille agencies came together in the latter half of the 20th century to discuss improvements to the Irish Code and eventually adopted 9 upper contractions from the English Braille Code CH GH SH TH ED ER ST ING AR (some of which had been used for the aspirated consonants) and 6 lower contractions EA CON DIS COM EN IN. Only AR was to be used as a wordsign and only in Prose as the poetry line sign excluded its use in Verse. Just one single letter wordsign was adopted: S for the word *agus* (‘and’). The lower contractions were used according to English Braille usage rules.9

The new code had a troubled upbringing, with some schools and teachers preferring Grade One, others using dot 4 for the accented vowels, while others still had no problem using further English contractions as they occurred. The Braille Unit of the Justice Department was probably the only agency to fully embrace the guidelines and indeed, with the introduction of computers and translation packages stealthily adopted IN as a wordsign in its own right as it was too problematic to Search & Replace same with uncontracted Braille!10

**Challenges in creating UIB**

As the 21st century drew near, the Irish alphabet had expanded to include the 6 remaining letters; mixed usage and new words were introduced, (jab, karaté, quinín, vóta, zú – *job, karate, quinine, vote, zoo*) and the letters just seemed to drift in although very few words even in modern Irish begin with those same letters.

And so it remained until UEB was underway. With the establishment of Ireland’s first own Braille Authority, INBAF (the Irish National Braille and Alternative Format Association) a Draft Paper proposed to research the feasibility of introducing both wordsigns and further contractions in the Irish Braille code and a steering group was formed.

The Irish Braille Working Group consisted of members whose expertise, taken together, aimed at representing education in Irish Braille, usage and production of same as comprehensively as possible. With up to four Irish Braille readers, a teacher of Irish Braille, an experienced Irish Braille transcriber as well as two Braille production specialists, different interests in and viewpoints on the education process were well represented.

The emphasis for the group was on being guided by the Irish Braille readers and to try and elicit feedback on the proposals from outside the group. Hence the first draft of a new Irish Braille code, devised by Pat Farrell, was circulated, together with reading material in the new code, to adult Braille readers, Braille readers attending secondary school and primary/secondary school Braille teachers and all the visiting teachers supporting students with visual impairment in mainstream education in Ireland. It was also important to the group to not only focus on the learning and educational aspect, but to involve anyone who would need to read or enjoy reading Irish through Braille for professional or leisure purposes, as the aimed-for point of the education process.

The first proposal was that any revised Irish Braille Code would adopt the new signs, punctuation etc. of UEB as Irish braille readers were generally bi-lingual. Thus, it would be ensured that school children would in future only encounter one set of punctuation signs across Irish and English.

Further to the proposal for wordsigns, a quantitative study of occurrences in Irish texts identified 17 words in common usage suitable for inclusion as single letter wordsigns. In addition, the proposed wordsigns were not only assigned depending on their frequency of occurrence in texts, but due consideration was given to any changes in spelling due to grammatical rules i.e. declinations, prefixes, aspirations etc. common in the Irish language. The wordsign S for *agus* was retained. The accented vowel symbols were also retained as it was felt that these characters, which had survived previous change, gave both the old and new codes that unique ‘Irishness’. Proposals to substitute these signs with dot 4 + vowel were hotly debated but as UEB was already committed to more advanced accent signs, the status quo prevailed. The dot 4 symbol was however retained to distinguish ‘simple’ foreign language words in Irish text, but in technical and language publications the full UEB accent signs were adopted. The original 9 aspirated consonants which had been dropped in the 1950s were revived as wordsigns simply by adding the letter H and in 4 cases using the relevant contraction. The contractions WH OU and OW were added to the upper contractions, while COM and BLE were deleted in line with UEB. The wordsigns AR and IN were retained and the shortform BRL was added as the word is exactly the same in both Irish and English. After much consideration these proposals were adopted.

Initial tests involved converting a number of short stories available in Irish Braille to UIB and trialling the result with Irish Braille readers. The results were positive and well received and all suggestions regarding streamlining and further development were taken on board. The changes were introduced to students at primary level in schools and again no major obstacles were encountered. The use of UIB and UEB side by side in bi-lingual texts following suitable indicators has been very successful.

The development of UIB continues and shortforms are now being identified which will be recommended for inclusion when the system is reviewed in future years.

After the working group was established in May 2012, the new Braille code, UIB – Updated Irish Braille – was adopted on 3rd March 2014. Once the new code had been adopted by INBAF, the Irish Department of Education was officially informed and in turn fully endorsed UIB. It took another year though until training in UIB was made available to all visiting teachers and Irish Braille teachers in schools and this training was then provided by members of the Irish Braille Working Group.

INBAF published the new Irish braille primer11, which is available through National Braille Production at ChildVision.

**Making UIB electronically available**

Whilst the development of the code was progressing, group members made contact with Assistive Technology providers to ensure that UIB would be available on electronic braille input and output devices. This meant looking at translation tables and testing by both members of the Irish Braille Working group and users of the code on devices. Making UIB electronically available was a priority for the group and we were lucky enough to have two group members with excellent technology skills which were applied to the cause.

**Liblouis**

The work of Ronan McGuirk and feedback from users, amongst them VICS, the Visually Impaired Computer Users Society, resulted in the release of UIB in Liblouis version 2.6.1 in December 2014. Liblouis is an open source braille translator which also works well with the open source screenreader NVDA. Liblouis was therefore the first step for the group to make UIB widely available. Ronan McGuirk is closely affiliated with the Abáir project in Trinity College, Dublin12 and reported to the group on encountering similar problems in producing elements of the Irish speech synthesizer and braille translation tables. The Irish Braille Working group thus profited from being linked in to other developments in making the Irish language more accessible to all.

**Duxbury**

For National Braille Production (NBP), as the only national braille transcriber for school textbooks, it was a priority to have UIB included as a new template in the Duxbury Braille Translator. The co-operation with Duxbury had worked very well when small changes to Irish were made in the early 2000s and the same applied in 2015. We forwarded our translation tables and exceptions to Joe Sullivan in January 2015 and co-operated with Duxbury on fine-tuning the template until it was released with the Duxbury 11.3, June release 2015. We have since successfully worked with the template in the everyday transcription work. As Duxbury is also used for the transcription of the State Exam papers, there is now consistency in the Irish materials provided for both study and exam purposes.

**NVDA**

Based on the work done for the Liblouis implementation, group members Ronan McGuirk and Michael Lavin continued to work on the implementation of UIB into NVDA. This made UIB available on a Braille Lite and a Pac Mate braille display. NVDA release 2015.3 in August 2015 saw the full release of UIB. The code is called Irish Grade 1 and Irish Grade 2 in the English language dialogue and Braille Gaelach gan Ghiorrúchán and Braille Gaelach Giorraithe in the Irish version.

At the time of writing testing with JAWS is under way, based on JAWS 17 providing Liblouis support for UEB. Testing is also still on-going with a Braillenote.

This means that, pending some further testing, UIB will be fully available on both commercial and Open Source translators and Screen Readers.

**The Canute**

In addition to that, INBAF, the Irish Braille Authority, had established links with the Bristol Braillists and Bristol Braille Technology in early 2015. After seeing a demonstration of the Canute braille display prototype in January 2015, a further test version was made available to INBAF in the summer of 2015. At that stage, the Canute operated by loading prepared files and correctly displayed UIB documents. Both braille libraries in Ireland, ChildVision’s Childrens’ and Research Library and the National Council for the Blind’s library would be ideal locations for further testing the Canute’s potential and especially so with Irish texts, as there is currently a lack of up-to-date Irish fiction books which could be easily made available via the Canute.

**Participation in Irish through Braille**

As outlined above, only a small minority of Irish pupils would be native Irish speakers. However, Irish is a compulsory subject in all schools throughout all class levels, i.e. from starting school at Junior Infant Level (at 4/5 years of age) to finishing school 13 or 14 years later at Leaving Certificate Level (17-19 years of age). Proven knowledge of Irish is also a pre-requisite for a variety of careers in the Irish civil service, teaching and many academic positions as well as a useful skill for full participation in Irish public life.

In English-speaking schools, i.e. the majority of schools in which English is the main language of instruction, only spoken Irish is taught until 1st class (3rd year of primary school). Then, written Irish is introduced. For children learning braille in those schools this means that the updated Irish code now fits seamlessly onto the acquired UEB template. Punctuation signs, maths symbols etc. stay the same, the main learning is therefore about the Irish language acquisition and the Irish contractions and word signs in UIB in an already familiar framework.

However, in Irish-speaking schools, the Gaelscoileanna, both spoken and written Irish are taught from Junior Infants level onwards and most literacy and numeracy skills are acquired in Irish as first language. So for the braille readers in Gaelscoileanna, the described process is largely reversed: First language literacy skills are acquired in Irish through UIB with knowledge about UEB punctuation etc. in place when written English is introduced. There are differences in the level of total immersion in Irish between different Irish schools, but in general UIB should facilitate the easier switching between English and Irish braille codes.

In theory, full participation of all braille-reading students in the acquisition of Irish via UIB should therefore be possible.

When studying the figures though, discrepancies become apparent13. Of the current 47 braille-reading students registered with National Braille Production, only 25 have requested Irish braille books. Out of the 22 students who have not, 9 have not yet reached the school level where full Irish books are required. The remaining 13 are exempt from Irish.

**Exemptions from Irish**

Students can be officially exempt from the formal study of Irish for the following reasons14:

* Pupil’s primary education up to 11 years of age was received in Northern Ireland or outside Ireland.
* Three years have elapsed since the previous school enrolment in the State and the pupil is at least 11 years of age on re-enrolment.
* Pupil has one of three learning disabilities: (i) Specific Learning Disability while functioning intellectually at average or above average (ii) General Learning Disability due to serious intellectual impairment and (iii) General Learning Disability due to serious sensory impairment – all leading to student failing to attain adequate levels in basic language skills in the mother tongue
* Pupil is from abroad, has neither English nor Irish, is required to study one language only and studies English
* Pupil’s parents are foreigners who are diplomatic or consular representatives in Ireland
* Pupil is resident as political refugee.

It is without question that the practice of exemptions makes sense in a lot of cases, in particular so when there are problems with acquiring English as a mother tongue for whatever reason or in the case of English as a foreign language.

For the current clients of NBP with exemptions from Irish, any of the above cases might apply, NBP is not privy to the reasons for an exemption. Anecdotal evidence from now adult braille readers points to a historical attitude of near automatic exemptions from Irish based on an attitude of not wanting to overload “the poor blind children”. Remnants of that attitude were still in place when NBP started its work in 2000, but over the last ten years attitudes have changed. This is partly due to the impact of new disability legislation in Ireland15 and the long-overdue endeavour for equality, partly also to the materials now being available in Irish braille via NBP. Prior to the establishment of NBP, braille transcriptions in Irish were provided by the braille unit of Arbour Hill prison, which advised the NBP on same during its set-up phase. Since then a correlation between the reliable braille provision and a proportionate increase in braille readers could be observed in the order and client number development of NBP16.

It is further expected that the reliable provision of UIB transcriptions will encourage parents and educators to allow blind children to fully participate in studying Irish in the classroom. First indicators for that development are the increase in braille readers attending Irish-speaking schools and the total increase in braille readers ordering Irish books. The latter exceeds the overall increase in new braille registrations, so that even proportionally more Irish braille books have been ordered between 2013-2015 than in the previous 3-year period (2010-2012).17

As indicated above, the status of Irish as a subject in schools was rather negative due to, amongst other factors, unimaginative teaching methods for a compulsory subject. This is changing, both for sighted and blind students, which also helps the uptake.

It is hoped that the increasing school participation in Irish through braille will be further extended to 3rd level and beyond for full participation in a society of two languages.

**Preliminary Conclusions in both Irish and International Context**

It is fair to say that without UEB ‘kick-starting’ the process, UIB would not have progressed so quickly. The need and intention to modernise the then Irish Braille code was recognized well before 2012, but UEB provided the opportunity to move that process forward. Throughout, the implementation schedule for UEB in Ireland was the same as for UIB. This made sense, because the same principles in creating UIB were applied that, for instance, South Africa applied to their native languages. The UEB punctuation, mathematics symbols etc. were maintained across the codes, whereas language specific contractions/word signs designate the native language code. It was encouraging for the Irish braille working group to see that their work corresponded with similar processes internationally and can also be seen as further proof that UEB works with native languages other than English – so why shouldn’t it work in other countries in the future?

Part of the dissemination and information process about UEB and UIB was a series of rather informal information sessions held around the country in 2014/15: in Cork, Dublin, Galway and Letterkenny. Braille readers and educators were invited and had an opportunity to read samples, talk about changes with experienced braille producers and collect material on both new codes. This approach seemed to have worked well in acknowledging worries about change and in explaining the ideas behind UEB and UIB. The Letterkenny session in Donegal was also attended by colleagues from Northern Ireland, which started a small piece of North-South collaboration with INBAF subsequently holding a UEB information session in Belfast for teachers of students with visual impairment. In Northern Ireland, Irish is taught as a choice subject in secondary schools only. The uptake appears to be fairly low, but, again, has growth potential. Through this collaboration, further links have been made with the RNIB Belfast and HM Prison Maghaberry and INBAF has provided the Irish Braille primer and information to same.

A definite advantage of working through the process in Ireland was that Ireland is a very small country with only one second national language. Therefore it was relatively easy to bring all interested parties and Irish braille experts around the same table with relatively little red tape. The majority of the Irish working group members gave their own time and worked voluntarily outside their main occupations and working times. This high level of goodwill was instrumental in moving the project along. The approach taken, to discuss and develop an initial proposal with a smaller working group, the majority of which were fluent Irish braille readers, and then to elicit and work with the feedback from a wider Irish braille reading audience, was successful for INBAF.

In terms of the feedback received at different stages of the design process as outlined above, the time lags between sending out text samples and receiving the feedback were quite significant. This might have been due to the voluntary character of the undertaking for some, time constraints on behalf of the teachers involved and perceived lack of priority. The overall progress was not hindered though and the parties involved will be available for more feedback when the current code will be reviewed at agreed intervals.

Very beneficial within the development of UIB was the strong technological knowledge within the group. The electronic availability of UIB was one of the cornerstones of the group’s work and it is due to those group members that UIB could be implemented with a variety of supported devices and translation programs.

So ‘Irish Braille in Progress’ can be applied at different levels:

The ambition of creating UIB has been fulfilled in modernising Irish braille in line with both its historical heritage and UEB as well as in keeping its system flexible for further changes and improvements. Review intervals have been agreed and the principle of being feedback-led will also apply in the future.

The introduction of both UEB and UIB at primary school level in Ireland has led to a renewed interest in braille by educators. National Braille Production, together with INBAF, have used that momentum to inform and promote UEB/UIB with resulting improved braille orders and an over-proportionate increase in Irish braille orders. It is hoped that this reflects more participation of braille readers in Irish in schools, leading to wider participation at a later stage in life for those students.

Reaching across the border to Northern Ireland with UIB is an important step to not only update the Irish code in both countries, but to move towards UIB defined as Unified Irish Braille.

Unbeknownst to the group at the beginning of their work, the process of updating Irish braille was very much in line with work done in other English- and other language speaking countries, thus proving that UEB is a very solid base for such developments.

**Footnotes/References**

1 see <https://en.wikipedia.org/wiki/Ogham> for first information, references for further reading on page.

2 <https://en.wikipedia.org/wiki/Saint_Patrick>

3 https://en.wikipedia.org/wiki/Ceretic\_Guletic

4 Book of Armagh – manuscript held in Library of [Trinity College, Dublin](https://en.wikipedia.org/wiki/Trinity_College,_Dublin) (MS 52), see also <https://en.wikipedia.org/wiki/Book_of_Armagh>

5 Source: Garvin, Tom: Nationalist Revolutionaries in Ireland 1858-1928, Clarendon Press, Oxford 1987

6 http://www.historyireland.com/18th-19th-century-history/the-blind-bard-of-belfast-carl-gilbert-hardebeck-1869-1945/

8 Source: O’Growney, Rev. Eugene, MRIA: Simple Lessons in Irish, Gaelic League Parts IV and V, Dublin 1922 and Braille edition of part 1 (no. 1 and 2) Irish Association for the Blind, 1937 and 1938.

9 At the same time, 1980, a local Dublin man who was losing his sight, Séan Ó’Mathúna, was asked by Jack Byrne of the Irish Association for the Blind (AIB) to start devising a fully contracted Irish braille code. Ó’Mathúna perceived Irish lacking a contracted braille code as a huge loss. His argument was mainly economic: Contracted braille takes up less space than uncontracted, thus not having a contracted Irish braille code would discourage the production of Irish braille books. His initial and extensive research was based on the frequency of occurrences of words/parts of words in several European language textbooks (mainly French, English, German) and the associated contractions in braille. He then aimed to apply similar principles to Irish. According to his writings he had established some links with the then Irish Department of Education, writing in a letter dated 23/08/81 “If the Department of Education don’t accept the shortforms the game will be up for the Blind”. However, his work was not published or brought forward in such a way that it would have had any influence on the development of Irish braille. Source: Ó Mathúna, Seán A.: Typed and handwritten notes relating to Braille and the Irish language with accompanying letters, manuscript held in the National Library of Ireland, Department of Manuscripts.

10 Arbour Hill Prison records, Braille Unit, Department of Justice, Ireland

11 INBAF 2014: UIB (Updated Irish Braille) – Overview and Rules

12 dhttp://www.abair.tcd.ie/?lang=eng

13 Statistics for National Braille Production clients and all associated orders for active clients are held in the NBP production database.

14 Irish Department of Education and Skills Circular 18/79 and revisions of same

15 The Education for Persons with Special Educational Needs (EPSEN) Act 2004, The Disability Act 2005, Citizens Information Act 2007 & The Personal Advocacy Service

16 Braille client numbers of NBP rose from 10 braille readers in 2002/3 to 47 in 2015/16.

17 Orders for textbook transcriptions of Irish books in Irish braille/UIB rose by 27%, orders for textbook transcriptions of other subject books into Irish braille/UIB rose by 40%.