You Get Out What You Put In: The Beginnings of Phonetic and Phonological Coding in the Signs of Ireland Digital Corpus

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Abstract

The following poster discusses a range of issues with respect to expanding the annotation of the Signs of Ireland (SOI) corpus to incorporate phonetic and phonological coding. This is part of ongoing PHD research that explores the phonology-morphology interface in ISL. It is the intention to identify the phonemes and the allophones of ISL using the corpus and thus it is necessary to incorporate a detailed annotation at the phonetic level. To date, no research has been done in this area apart form a phonetic description of handshapes in the language. The poster outlines how a range of phonetic features have been established for ISL, drawing on work on other signed languages, and the changes that had to be made to the original list of features to accommodate ISL. Also discussed are the factors influencing decisions regarding the coding and naming of handshapes at phonetic level and what type of tiers were needed to accommodate the proposed research and future research at the phonetic and phonological level.

1. Introduction

This poster discusses a range of issues with respect to expanding the annotation of the Signs of Ireland (SOI) corpus to incorporate phonetic and phonological coding. This forms part of ongoing PHD research work that explores the phonology-morphology interface in Irish Sign Language (ISL).

The SOI corpus consists of over 40 narratives that have already been highly annotated: it contains glossed lexical signs, classifier constructions and non-manual features. Classifier handshapes have also been annotated. It is my intention to identify the phonemes and the allophones of ISL using the corpus and it is thus neccessary to incorporate a detailed annotation at the phonetic level.

This poster outlines how, by drawing on Crasborn's (2001) and Van der Kooij's (2002) work on Sign Language of the Netherlands (SLN), a list of phonetic features have been established for ISL and the changes to the original list of features that were required in order to accommodate ISL.

I also outline the factors influencing decisions regarding the coding and naming of handshapes at phonetic level. These include the question of whether already established naming conventions be maintained. For example, moving away from established protocols will result in inconsistencies within the annotations in the corpus. However, for the purposes of phonetic research a more elaborate coding might be necessary. Another challenge involves establishing what types of tiers are needed to accommodate the proposed research as well as future research at the phonetic and phonological level.

2. **Phonetic Features for ISL**

In order to identify the phonemes and the allophones of ISL, a list of phonetic features for the language must be identified. To date, no research has been done in this area apart from basic work describing handshapes in ISL. Thus far, there is no agreement on the phonetic alphabet inventory for ISL: Ó'Baoill and Matthews (2000) identified 66 handshapes while Matthews (2005) identified 78. The issue of allophonic variation has not yet been tackled for this language.

The other parameters that have traditionally been used to describe signs (i.e. location, movement and orientation) have not been researched in ISL at phonological or morphological level. All that currently exists is a vaguely phonetic level description of parameters with respect to research on American Sign Languge (ASL) (See O'Baoill and Matthews, 2000; Matthews, 2005).

Since there is no detailed list of phonetic features in ISL existing, we will incorporate work that has been done on SLN (Crasborn, 2001; Van der Kooij, 2002) and ASL (e.g. Stokoe, 1960; Liddell and Johnson, 1989). By drawing on this work we have established a list of phonetic features for ISL. Because we do not have a precice knowledge of what phonetic features exist in ISL, apart from handshapes, and we do not yet know which properties may be distinctive in the language, we have initially included a vast array of phonetic properties. As the work proceeds then, we expect this list to be reduced.

2.1 ISL handshapes

For annotation purposes, challenges arise in terms of how handshapes are recorded: for example, of the 66 handshapes identified in Ó'Baoill and Matthews (2000), 28 are established as occurring as classifier handshapes also. These are annotated following ECHO project annotation norms (Nonhebel et al., 2004) where possible, with additional handshapes drawn from a list of 48 classifier handshapes described for BSL in Brennan (1992) using names like CL-B, CL-ISL-K etc. within the framework of the SOI corpus.

There is some inconsistency in the literature when it comes to handshape names. Researchers usually use names that refer to the alphabet in the sign language being discussed. Although some of these names are compatible between signed languages, such as B (a flat hand) and A (a fist-handshape), we do find different naming conventions as well (e.g. W in SLN uses thumb, index and middle finger which is represented as 3 in ASL). For transcription purposes, we have decided to incorporate the coding used in the SignPhon database¹ (A1, A2, B1, B2 etc., see van der Kooij 2002). This will save time when transcribing and is useful if we later decide to use SignPhon to create a database for lexical signs in ISL. Also, coming up with names for all ISL handshapes is a time consuming process and redundant at this stage since we expect this list to change as the research proceeds.

Some changes have already been made to our current list of handshapes (see figure 1 a-b).



Figure 1a²: ISL handshape not found in HamNoSys (Prillwitz et al., 1989)



Figure 1b³: Handshape not noted before in ISL, but used in Signs like BOY.

Thus, the naming conventions for classifier handshapes in the corpus have not been maintained for lexical signs. In order to facilitate search between handshapes in lexical signs and CCs^4 , information on the names of classifier handshapes is included in the notes tier. A subdatabase for handshapes, drawing on SignPhon, will be created where the exact articulation of the handshape and semantic information is included.

3. Discussion

As noted above, one challenge involves establishing what types of tiers are needed for the research. When attempting to transcribe or code phonetic features in a language with the aim of using the information in phonological analysis, a problem

¹ This is a database created to research phonetics and phonology of SLN and includes lexical signs only (See Crasborn 2001; Crasborn et al. 2001; van der Kooij 2002).

² Illustration copyright © Patrick Matthews (forthcoming).

³ Handshape figure from Prillwitz et al. (1989)

⁴ Classifier Constructions.

irises as how to make the coding functional when doing different searches regarding phonology. Ideally then, one should know the phonology of the language and what kind of search will be neccessary *before* attempting the phonetic coding. However, this is seldom the case. This problem has been referred to as the *database paradox* by Crasborn et al. (2001) and Van der Kooij (2002). In order to beat this paradox, it is neccessary to rely on research in other signed languages as well as preliminary observation of the language in question.

Crasborn et al. (2001) report that a disadvantage of the SignPhon database is that it includes one instance of a sign, articulated by one signer, thereby excluding the possibility of variation being detected: "ideally, to make a phonological analysis one would want to compare different instances of the same sign, signed by various signers in various contexts" (p 224). While this is possible in the SOI corpus, it poses another problem which relates to the kind of data we are using for this research. The SOI corpus is a 'live' corpus and therefore the signs are not articulated in citation form. Thus, we must ask how variation in articulation can be annotated in the corpus so that they are still identifiable in a search. Figure two a-b shows and example of variation in SF⁵ articulated by the same signer within one narrative. Interestingly, the sign articulated before the variant of BOY in figure two b, is a two handed sign using a handshape with four SF (the remnants of the sign can still be seen on the non-dominant hand), thus ruling out an instance of assimilation. In order to detect such instances of variation in a search, we have included a tier for phonetic variation where the 'correct' feature is noted.



Figure 2a: The sign BOY, articulated with four SF.



Figure 2 b: Variation of the sign BOY, articulated with one SF.

⁵ SF = Selected Fingers

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