

The Icelandic sign language dictionary project: some theoretical issues

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This paper reports on the lexicographical description of the construction of an electronic dictionary for Icelandic Sign Language (ITM). The author reviews briefly some theoretical issues regarding the dictionary project: L1 Icelandic and L2 ITM and its potential users: the general public and the Deaf; the collection, evaluation and selection of signs; the lemmatizing process influenced by oral components on the semantic level and by manual features on the phonological level; the dictionary entry which is a sign demonstrated by a 'video clip'; access structures based on the specific phonological structure of SL, on the spoken language and picture themes with illustrations; the dictionary article where information about the nature of the signs is given and practical problems concerning the presentation of classifier predicates and the low reliability of hearing researcher moderating discussion sessions with Deaf informants is examined. The goal of the dictionary project is to collect the signs which are currently in use because there isn't a dictionary for ITM in order to (1) document the language and (2) be an instrument for researches so that users can get practical avail of it and the dictionary will be of importance for getting legal recognition of ITM.

1. Introduction

There are approximately 300 Deaf users of Icelandic Sign Language (Íslenskt táknmál, ITM). The first dictionary of ITM was published in 1976 and was last edited in 1988. The ITM dictionary is a wordlist consisting of illustrations of the signs, sometimes specially invented for the list's purpose, presenting an Icelandic word or an inflected form of a common Icelandic verb and of loans from Swedish and Danish Sign Languages. In 2004 The Association of Parents and Benefit Society of Hard of Hearing children subsidized a compilation of signs which was published on the Internet under the name The sign bank. The novelty is that signs are shown by 'video clips'. Actual lexicographical work has not been done in this field in Iceland. These circumstances call for a compilation of an electronic dictionary of ITM based on linguistic principles and lexicographical methods.

The facts that dictionary compilation for SL is in general time-consuming, expensive and the limited number of potential users similarly to ITM make the work on a dictionary of ITM very difficult. The dictionary project for ITM has been more or less at a theoretical stage during the last two years, starting in 2008 with a M.A. thesis on lexicographical description for an electronic dictionary of ITM on the basis of linguistic principles (Ivanova, 2008) and in 2009 with a description of a lexical bilingual database for the dictionary compilation. At the same time in 2009 a list of 6441 signs was compiled by Deaf and hearing researchers at the Communication Centre for The Deaf and Hard of Hearing. Today in 2010 the project is on hold due to financial reasons.

However, the ITM dictionary project is the first incisive research on an ITM lexicon. The purpose of the ITM dictionary with its 4000 entries, when published, is to give answers concerning the basic forms, meanings and appropriate usage of the signs.

This paper reports only on the main lexicographical issues regarding the description for construction of the dictionary of ITM.

2. Theoretical issues

2.1 The dictionary and its potential users

The dictionary of ITM is bilingual, bidirectional and bifunctional (Svensén, 2004). The two languages are Icelandic or L1 and ITM or L2 where Icelandic is the mother tongue of the majority of potential users. The dictionary is L1→L2/L2→L1, both for hearing and Deaf people and both for perception and production of texts.

Hearing people can make use of the dictionary (1) to understand the meanings of signs and (2) to construct texts in ITM. Deaf users can make use of the dictionary (1) to understand the meanings of Icelandic words and (2) to produce texts in Icelandic by finding more equivalents to a sign, even though grammatical information for the equivalents is not given, at least not in the first edition.

Potential users of the dictionary include members of the general public interested in ITM; parents of Deaf children and their hearing friends, interpreters and hearing people teaching ITM, students in Sign Language studies, people who attend SL courses as well as the Deaf people themselves.

2.2 Sign's collection, evaluation and selection

The Deaf society is concentrated in the capital area and there aren't any regional variations of ITM, which made the collection process easier. 9616 signs were collected from (1) The ITM dictionary, (2) The sign bank, (3) various sign lists and (4) approximately 2 hours of video footage of conversations between Deaf people on different topics. Deaf researchers, divided in two groups by their age evaluated the 9616 signs according to five criteria: *current use by younger people*, *current use by older people*, *old sign, not in use* or *I do not understand the sign*. For the signs evaluated as *currently in use* the Deaf

researchers marked also the frequency of use according to their personal experience as *used by all* or *not used by all*. The two evaluations were compared for each sign and differences in them were discussed. The result is a list of 6441 signs including signs evaluated as *currently in use by younger and older people*, *used by all and not by all*, and *old signs*. It was decided to select 4000 signs evaluated as *currently in use by all younger and older people* for the first edition of the dictionary.

2.3 The lemma selection

The dictionary entry is a sign in its basic form demonstrated by a ‘video clip’ and an Icelandic gloss in the macrostructure of the dictionary. The basic form of the sign is „the simplest possible form of a lexeme which still identifies it uniquely and which still conveys what is regarded as its core or essential meaning.“ (Johnston & Schembri, 1999). It is not modified e.g. in plural or when inflected and it is the answer of the question: “What is the sign for ... ?”.

2.3.1. The lemma selection for lexical items with identical manual features

The lemmatization process is influenced by mouthings and mouth gestures as a lexicalized part of the lemma on the semantic level. The signs glossed in (1.a and b) differ only in mouthings, which imitate the Icelandic equivalent of the sign or a part of it. Mouthings are underlined in the examples:

- (1) a. SYSTKIN ‘brother(s) and sister(s)’
 b. ALVEG SAMA ‘do not care’

The signs glossed in (2.a and b) differ only in mouthings:

- (2) a. BORÐA ‘eat’
 b. MATUR ‘food’
 c. NESTI ‘provisions’

The signs glossed in (3.a-c) differ in mouth patterns not related to Icelandic language and in imitations of sounds which do not constitute Icelandic word:

- (3) a. STRIÐA <ððððð> ‘tease’
 b. HVERNIG <vo> ‘how’
 c. AF HVERJU <hv> ‘why’

The signs glossed in (4.a and b) differ in mouth patterns not related to Icelandic language:

- (4) a. ÁST <munch> ‘love’
 b. GÓÐ TILFINNING <neutral> ‘good feeling; good emotion’

The signs glossed in (5.a and b) differ in mouthing and mouth gesture:

- (5) a. DAGUR ‘day’
 b. EKKERT <ððððð> ‘nothing’

The two signs in (1.a and b) are represented as two different lemmas in the dictionary, because their meanings are not connected (Berkov, 1996). The same principle applies to the signs in (3.a –c) and (5.a and b). The signs in (2 a.-c) are represented as one lemma with three different meanings, because of the relation of the meanings of these signs. The examples in (4.a and b) are treated in the same way. This decision was taken after numerous long discussions with Deaf researchers. Such

kind of distinction, where meanings are connected or not, could be very difficult to make and for some signs a compromise must be made at the expense of (1) more homonyms in the dictionary; (2) a more complex dictionary article for some signs and (3) a distinction between two or more dictionary entries which are treated as one sign by native speakers or vice versa, one dictionary entry and two or more signs.

2.3.2. The lemma selection for lexical items with identical meaning

The selection of lexical items with identical meaning is adopted from Troelsgård & Kristoffersen (2008). Signs are found to be synonyms on the basis of their phonological structure and are entered as two or more dictionary entries if they differ in two or more manual features: location, handshape, movement or orientation:
 (6) a. ÞÚSUND ‘thousand’ S-handshape and movement down
 b. ÞÚSUND ‘thousand’ T-handshape and movement forward

If signs differ only in one manual feature, they are treated as lemma and variant(s):

- (7) a. BRÁÐNA ‘melt down’ palm faces up
 b. BRÁÐNA ‘melt down’ palm faces down

Frequency of use is determinant whether a sign is entered as lemma or as its variant(s).

2.4 Access structures

With the potential users in mind, access possibilities make the search for a sign easy and quick. The dictionary’s access structure requires (1) every sign’s phonological description and (2) grouping the signs in semantic fields. Searches are possible by four criteria based on the signs’ manual and non-manual features, Icelandic words or parts of words and illustrations.

Detailed phonological description for each sign will i.a. be the base for organizing the signs on the level on the macrostructure of the dictionary for ITM. A preliminary suggestion for a model for organizing the signs is based on the model for DSLD (Troelsgård & Kristoffersen, 2008) and on the description of phonological categories for the Sign Language of Netherlands (Crasborn, 2001; Van der Kooij, 2002).

2.4.1. Access by handshape

There are two possibilities for the user to access a sign by handshape. (1) If the handshape does not change during the production of the sign, the user can choose a handshape or variant of the handshape for the strong and/or for the weak hand from a set with handshapes (e.g. *Suvi* and The Danish Sign Language Dictionary, abbreviated as DSLD). In two-handed signs the chosen handshape may be the same as for the strong hand or not. The user gets a sign or list of signs, both one-handed signs and two-handed signs, which have the chosen handshape or handshapes. (2) If the handshape does change, the user can choose a handshape or variant of handshape for the strong hand for the beginning of the production of the sign

from a set with handshapes and then he can choose another handshape at the end of production of the sign from a popup window with suggestions of possible handshape combinations. Those suggestions are based solely on the phonological information about the signs included in the dictionary. It is not expected from the user to analyze the signs, but to find the sign he might be looking for as quickly as possible. The user gets a sign or a list of signs which have the chosen handshape for the beginning and the chosen handshape at the end of the production of the sign.

An informal research at the Communication Centre for The Deaf and Hard of Hearing has shown that there are about 40 handshapes in ITM, but this issue still needs to be researched.

2.4.2. Access via location

Here the user can choose again between two possibilities to access a sign. (1) He chooses a location from a set of pictures for different locations (e.g. *Suvi* and DSLD). (2) If the location does change during the sign's production a popup window opens with suggestions of possible end location. The user combines both locations. He gets a sign or a list of signs which have the chosen location or combination of locations.

It is also possible to combine a handshape or handshapes with location and search for sign(s) which have the chosen combination of handshape(s) and location.

At this stage 25 locations are defined. However, more research needs to be conducted.

2.4.3. Access by mouth gestures with no relation to Icelandic language

The user gets a list of all mouth gestures with no relation to Icelandic language which are to be found in the dictionary. He chooses a mouth gesture. He gets an exhaustive list of all signs that have the chosen mouth gesture.

2.4.4. Access by mouth gestures which are imitations of sounds that do not constitute Icelandic words

The search principle is the same as in 2.4.3.

Research on mouth gestures has not been done yet so it is not possible to say how many they are.

2.4.5. Access by an Icelandic word

The user may search for a sign by typing in an Icelandic word or a phrase. The search box displays a list of suggestions to assist the user in finding a word or phrase. The search is in the equivalents, in explanations and glosses for the examples. The user gets a list which includes all the dictionary entries which match the typed word or phrase. Icelandic equivalents which are nouns are given in nominative singular; adjectives are in nominative singular masculine and verbs are in infinitive, i.e. the equivalent's form is not inflected for case, number, gender and time. The same principle applies also to glosses in Icelandic.

2.4.6. Access via picture themes with illustrations

The idea is adopted from the LEXIN dictionaries¹. Signs are grouped in picture themes for concrete phenomena on the basis of collective interrelation to the topic in question. An illustration of the phenomenon is to be found in the picture theme it belongs to. Access to the dictionary entry is through the illustrations. After choosing a picture theme the user gets a collection of smaller illustrations which characterize that theme. The user chooses an illustration by clicking on it. The equivalent sign opens in a popup window. The sign is demonstrated by a 'video clip' and an Icelandic gloss. The Icelandic gloss is linked to the relevant dictionary article in case the user would like to read more about the lemma. The use of such kind of access to the dictionary leads to avoidance of the written Icelandic word as an entry to a sign. This access can be used e.g. by parents of Deaf children, who only want to see the sign and not the dictionary article, by Deaf children and children of Deaf adults in order to increase their vocabulary, and by Deaf foreigners who do not know Icelandic.

2.5 The dictionary article

In the dictionary article phonological information is given with pictures which show two manual features of the sign: handshape and location (as in *Suvi* and DSLD).

Mouthings are shown by underlining that part of the Icelandic equivalent which is "pronounced". Mouth gestures are described and shown in $\langle \rangle$. A sign's meaning is given by Icelandic equivalent(s) or explanation(s). A sign's modification for plural is shown by a link to the correspondent part in the explanatory grammar chapter in the dictionary. A sign's modification for subject-object verb agreement is illustrated through example. The example in the dictionary article consists of a 'video clip', a gloss of the example in Icelandic and translation in Icelandic. Variants of the sign are marked and are shown with a 'video clip'. Links in the dictionary article lead to homonyms, synonyms and picture theme when applicable. Information on a lemma's area of use, limitations of use and shades of meaning are also given when applicable.

2.6 Practical problems

2.6.1. Classifier predicates in the dictionary article

Being part of the productive lexicon the classifier predicates are not given the status of lemmas in the dictionary. They are shown in the dictionary article in form of examples of the use of the dictionary entry. With potential users in mind and their knowledge or lack of knowledge of sign language grammar and terminology it is hard to find a right way to gloss the meaning of classifier predicates. Two ways are considered possible: (1) to write the word 'proform' in the gloss (e.g. as in

¹ The LEXIN dictionaries are web-based dictionaries for immigrants in Norway, Sweden and Denmark. In those dictionaries picture themes with illustrations are also used to access lemmas. The Icelandic LEXIN project is on hold as of 2010.

DSLID) without any explanations and a translation in Icelandic presenting the meaning of the classifier predicate or (2) to gloss the classifier predicate with small letters as simple as possible and concisely enough to present the meaning. The meaning of the classifier predicate is given as a combination of the translation in Icelandic and the video clip. For the Icelandic dictionary the second possibility was chosen even though this approach is known to be time-consuming and quite challenging.

2.6.2. Low reliability of hearing researcher moderating discussion sessions with Deaf informants

In trying to extract the potential meaning(s) of a sign and its use two discussion sessions with Deaf informants (the same researchers who evaluated the signs and are familiar with the project) and moderated by hearing researcher were held. A sign (or a root?) in its basic form, but without mouthings and mouth gestures, was presented. Deaf informants were asked (1) to suggest which sign(s) might have the concrete manual structure, (2) to accompany the sign with proper mouthings and/or mouth gestures and (3) to use the sign(s) in context. In this preliminary research was noticed that it had would be better if Deaf researcher moderated the sessions for two reasons: (1) The sign language used in these two sessions by Deaf informants with the hearing researcher differed in structure from the sign language Deaf people used between themselves. It was strongly influenced by Icelandic grammar and the meanings of the words in Icelandic. (2) Deaf informants tried to give answers and examples of what they thought the hearing researcher was looking for instead of using the signs being researched in context in ITM.

3. Conclusion

As shown in this paper, the project for a dictionary of ITM is at a planning stage, i.e. it is based mostly on theory and very little on practice. It is conceivable that some of the issues described in this paper are really hard to achieve, more time-consuming than was thought in advance and changes would be necessary. The dictionary project for ITM does not aim to be a novelty in the field of SL lexicography because ideas from dictionaries of other sign languages have been adopted, but the dictionary project is novelty for ITM being the very first lexicographical project and therefore of importance for (1) documentation and basic research of ITM and (2) getting legal recognition of the language.

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