

Proposing an Instrument for Evaluation of Online Dictionaries of Sign Languages

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Summary

Dictionary criticism has been criticized for only being concerned with the description of design features of dictionaries, while not giving much attention to the evaluation of dictionary features, and for lack of objective standards. In this paper we describe the features of Croatian sign language (HZJ), investigate characteristics of dictionaries of signed languages (with special attention to dictionaries of Croatian sign language), and examine evaluation criteria for different types of printed and online dictionaries. We propose a set of evaluation criteria relevant for a sign language dictionary and point out why sign language dictionaries should transcend the traditional printed formats. The evaluation criteria described in this paper will in further research be used as an evaluation instrument of some existing online sign language dictionaries to assess the instrument. We will apply that as a foundation for the construction of a model of an online HZJ dictionary. It is our hope the evaluation instrument provided in this paper, and the model that will be suggested afterwards might help make a professional, well thought out, and beneficial online dictionary of HZJ.

Key words: Croatian sign language (HZJ), sign language lexicography, online dictionary, dictionary evaluation

Introduction

As expected of a paper in the field of lexicography, we begin with a definition of dictionary criticism by *Dictionary of Lexicography*: “a branch of dictionary research concerned with the description and evaluation of dictionaries and other reference works” (Hartmann and James 2002: 32). Dictionary criticism has been criticized for only being concerned with the description of design features of dictionaries, while not giving much attention to the evaluation of dictionary

features. Moreover, most of those reviews were unfavourably judged by other lexicographers, mainly for the lack of objective standards (Swanepoel 2008: 209). In this paper we describe the features of Croatian sign language, investigate characteristics of dictionaries of signed languages, and examine evaluation criteria for different types of printed and online dictionaries. We propose a set of evaluation criteria as an instrument for evaluation of online dictionaries of sign languages, thereby hoping to contribute to an improvement in the quality of dictionary criticism in the field of sign language lexicography.

About sign languages

In this section we bring a brief overview of features of a sign language¹. A sign language is a primary or first language of the Deaf² and Deafblind³. The media of a sign language are signs made with hands, head, and body. A sign language is "not a crude approximation to a spoken language" (Trask 1999: 184) – it is genuine and natural, it has an extensive vocabulary, complex grammar, and is as flexible and as expressive as a spoken language. There are many sign languages – for example Croatian Sign Language (HZJ), American Sign Language (ASL), Australian Sign Language (Auslan), British Sign Language (BSL), Brazilian Sign Language (BLS or Libras) and so forth. Even though those sign languages share names with some spoken languages, they are not equally spread – sign languages don't depend on national borders since they develop in any group of deaf people. For example, BSL and ASL are mutually unintelligible, even though British and American hearing people share the same spoken language. Grammars of sign languages don't resemble those of languages spoken in the same geographical area – "ASL shares more with spoken Japanese than with English" (Nakamura 2008). Unlike the oral-auditory modality of spoken languages, sign languages have visual-spatial modality. From this difference in modality stem many issues in writing any sign language down and creating a dictionary of a signed language, as will be shown in the next section.

¹ Due to the space constraints, some parts of the overview may seem as an oversimplification of some sign languages. While organizing this section, we had the characteristics of the Croatian Sign Language in mind. However, while compiling the evaluation instrument, we took into account characteristics of other sign languages.

² The term "Deaf" refers to the members of the linguistic community of sign language users, while the term "deaf" describes the audiological state of deafness. (Morgan, Woll 2002: 20)

³ Deafblindness is a specific and unique double sensory damage of sight and hearing in various possible combinations of intensity: hearing and visual impairment, deafness and visual impairment, blindness and hearing impairment, and practical deafblindness. A person with progressive visual impairment or with constant visual impairment with deafness forecast can also be considered as Deafblind. Also, this classification covers the Deafblind with characteristic syndromes (Usher syndrome, Charge syndrome). (translated by the author, Tarczay 2001: 146-147)

Sign languages were first systematically described in the middle of the 20th century. The basic unit in any sign language is a sign. The five elements of a sign are handshape, location, movement, orientation, and non-manual markers. Croatian sign language (HZJ) distinguishes 44 different handshapes and 17 main locations on the body. Movement is the most complex element of a sign – it describes how the hand moves through the articulation space: its direction (up, down, left, right, forward, backward), repetition, speed, and coordination (when using both hands to sign). Orientation element is the distinctive degree of rotation of the hand in relation to the signer. Non-manual markers are facial expressions, and movements of the body and head. These elements of a sign, or sign's parameters, are phonemes of a signed language. They are different from phonemes of a spoken language in that they often appear simultaneously.

Sign languages cannot be written down as spoken languages can. "ASL (...) does not have a written form. A sign conveys a concept, not an English word, and the production of a sign involves five elements that need to be described" (Tennant, Gluszak Brown 1998: 26). There are notation systems⁴ – Stokoe's notation system being the first – which can be used to write sign languages down so that the analysis of the language structure could be possible. Those notation systems use symbols and abstract pictures to describe a sign and all its elements, and are not written in a single line but also use the vertical plane to add information. Course books by the Croatian Alliance of the Deafblind *Dodir* "Znak po znak" (ZPZ)⁵ offers a notation system that is a combination of a translation of the signs with added symbols for extra information about movement, repetition, etc.

It is interesting that HZJ, unlike its spoken counterpart, does not use grammatical cases nor verb conjugations in the sense the spoken Croatian language does. There are some modifications to the signs depending on the quantity of subjects and/or objects, but signers often use the canonical form of nouns and adjectives in combination with pronouns, adverbs, and prepositions (which can often be modified, e.g. in numeral incorporation), while verbs of motion and location use other kinds of grammatical markers (e.g. classifier predicates).

⁴ For example:

Stokoe notation (Stokoe, W. "C.(1960). Sign language structure." Studies in Linguistics: Occasional Paper 8.)

The Hamburg Notation System (HamNoSys) (Prillwitz, Siegmund, and Hamburg Zentrum für Deutsche Gebärdensprache und Kommunikation Gehörloser. HamNoSys: Version 2.0; Hamburg Notation System for Sign Languages; An Introductory Guide. Signum-Verlag, 1989.)
SignWriting (Sutton, Valerie. Lessons in Sign Writing: Textbook. SignWriting, 1995.)

⁵ Tarczay, Sanja et. al. Znak po znak 1, 2, 3 : udžbenik za učenje hrvatskog znakovnog jezika. Hrvatska udruga gluhoslijepih osoba "Dodir". 2006-2007.

Dictionaries of signed languages

Since the first systematic descriptions of sign languages, the need for a good sign language dictionary was obvious. The first printed sign dictionaries in the 20th century were monodirectional alphabetical lists of words of a spoken language – that could also be divided thematically – which was then translated into a sign language via a picture and/or a description of the sign's elements. Another, but rarer kind of dictionaries that developed later in the 20th century are dictionaries that listed signs by one of the sign elements (e.g. handshape) and gave a translation to a spoken language, e.g. *A dictionary of American Sign Language on linguistic principles* by Stokoe, William C., Dorothy C. Casterline, and Carl G. Croneberg from 1976.

Those first dictionaries usually chose their entries on a basis of a dictionary of a spoken language. Creating a corpus for a dictionary of a signed language mostly takes several deaf people who are given topics to talk about while being recorded. Today several larger corpora exist, e.g. "[...] the sign language of deaf communities in the Netherlands, the UK, Ireland, Sweden, Greece, Australia and the US but also e.g. Mali" (Crasborn 2010). In such way lexicographers can find out which signs are the more frequent ones, how the signs are used and what meanings they carry.

Since sign languages have a different modality from spoken ones, it is difficult to print a dictionary that will provide enough visual-spatial information that could easily be understood. Some dictionaries use one of the existing notation systems to try to convey more information. "The problem is that, in order to profit from the encoded information, the dictionary user has to invest time and effort either in learning the (not very transparent) codes or in constantly consulting the key to the codes. It is not by any means evident that most dictionary users are prepared to make this kind of investment" (Singleton 2000: 205).

Therefore it is much easier to use dictionaries that rely on pictures with descriptions of signs. Modern technology brings new media into play and enables the creation of e-dictionaries of sign languages that can use a variety of media – text, picture, notation systems, and, most importantly, video. When using both online dictionaries of sign language and those on a CD-ROM, it is impossible not to agree with Singleton (2000: 200) when he writes that "many of these are quite disappointing in terms of their failure to use the extraordinary possibilities offered by the technology, some being little more than rather crude glossaries with very limited search facilities." Of course, there are also some great examples of dictionaries that have taken advantage of technology and put the traditional formats aside⁶.

⁶ For example: an online dictionary of Dutch - Flemish Sign Language "Woordenboek Nederlands — Vlaamse Gebarentaal, Vlaamse Gebarentaal — Nederlands" URL: <http://gebaren.ugent.be/> (10.5.2017.) and an "Online Dictionary of New Zealand Sign Language" URL: <http://nzsl.vuw.ac.nz/> (8.5.2017.)

HZJ dictionaries

At the time being, Croatian Sign Language or HZJ doesn't have a high quality dictionary. ZPZ as a learner's handbook (2006 and 2007) offers "znakovnica"⁷ – a thematical alphabetical list of signs with their images and translations into Croatian at the end of every theme. There is a traditional printed dictionary "Hrvatski znakovni jezik"⁸ by a group of editors which was published in 2015⁹. The dictionary is a short alphabetical list of pictures of HZJ signs and their translations into Croatian. There are not many signs and the ones that were included into the dictionary are not always the most frequent ones – one can find *žuboriti* (to murmur, to babble), but not *žvakati* (to chew). Another tends to be a specialised dictionary: "Gluhi i znakovno medicinsko nazivlje: kako komunicirati s gluhim pacijentom"¹⁰ published in 2010¹¹. It consists of many texts on the Deaf and HZJ, a small section of general signs (e.g. *ići* (to go)), and a slightly bigger section on medical terminology, e.g. *alergija* (allergy), *Alzheimerova bolest* (Alzheimer's disease). While the entries in the general dictionary section only consist of a gloss and a picture, the medical ones include a short definition. This dictionary consists of around 250 entries. The only online HZJ dictionary called CroDeafWeb¹² is on a good track – it has an alphabetical list of words, each entry has a video or a gif showing how a sign is signed, and a short written description of the movements in signing. Unfortunately, it only has around 500 signs, a lot of which are liturgical. Comparison of HZJ dictionaries by the approximate number of entries is shown in Table 1.

Table 1: Approximate number of entries in dictionaries of HZJ

Dictionary	Number of entries
Znak po znak	4500
Hrvatski znakovni jezik	1200
CroDeafWeb	500
Gluhi i znakovno medicinsko nazivlje	250

⁷ A rough translation is “a sign book”, a coined word based on “slikovnica” (“a picture book”).

⁸ Translation: “Croatian sign language”.

⁹ Hrvatski znakovni jezik . Ristić, Milan.; Baštijan, Zdravka.; Biškupić Andolšek, Tajana. (Eds.) Zagreb : Hrvatski savez gluhih i nagluhih, 2015.

¹⁰ Translation: "The deaf and signs for medical terminology: how to communicate with a deaf patient"

¹¹ Gluhi i znakovno medicinsko nazivlje : kako komunicirati s gluhim pacijentom. Šegota, Ivan; Šendula-Jengiđ, Vesna; Herega, Damir; Petaros, Anja; Conar, Jevgenij. Zagreb. Medicinska naklada. 2010.

¹² <http://www.crodeafweb.org/rjecnik/index.html>

Dictionary evaluation

Evaluations of traditional printed dictionaries were often written but have, as Hartmann notes, "(...) been beset by personal prejudice rather than noted for the application of objective criteria" (1996: 241). To make it easier to apply objective criteria, a kind of a measuring system had to be made. Researchers made lists of points one should mention in a review, or evaluation criteria.

Haas lists 12 desiderata (as cited in Landau 2011: 11) any bilingual dictionary should contain, while Landau (2011: 11) notes some limits which those needed elements set for each other:

1. "It provides a translation for each word in the source language.
2. Its coverage of the source language lexicon is complete.
3. Grammatical, syntactic, and semantic information is provided.
4. Usage guidance is given.
5. Names are included.
6. It includes special vocabulary items, such as scientific terms.
7. Spelling aids and alternative spellings are indicated.
8. Pronunciation is included.
9. It is compact in size – which obviously limits its coverage of items 1-8."

A traditional printed dictionary can't be compact in size and provide all the above mentioned information. The first of quoted Haas' desiderata – providing translation for each word in the source language – might be possible only for a dead language because only a dead language has a finite number of texts and "no new sentences are produced in a dead language" (Zgusta 1971: 217). This can be done with an e-dictionary – "Electronic dictionaries are not subject to such constraints, and, with their capacity to offer links to other entries and to other sources of information, may indeed be virtually limitless in respect of the quantity of information they can make available" (Singleton 2000: 199-200), thereby having the capacity to continuously improve the coverage of the dictionary. Jackson (1996: 7-11) proposes a range of vocabulary, word formation, homographs, defining, sense division, lexical relations, collocations, connotations, pronunciation, grammar, usage, examples, etymology, and special features as the main criteria for evaluating a dictionary. More recent criteria for dictionary criticism could be divided into categories like the ones Svensén (2009: 483) lists: dictionary functions, dictionary users, advice given to the users, price, layout / web design, the compiler(s), comparison with other dictionaries, prehistory of the dictionary, reference to other reviews, the reviewer, dictionary basis, outside matter, lemma selection, establishment of lemmas, search and access options, entry structure, the normative/descriptive dimension, equivalents, grammar, orthography, pronunciation, semantic and encyclopaedic information, diasystematic information, etymology, examples, collocations, idioms, illustrations, synonymy/antonymy, cross-references, entertainment value, and unified concluding evaluation. This list already mentions some elements which can only be applied to e-dictionaries, such as

web design, and search and access options. For a sign language there are some additional elements that should be evaluated. In the recent years, the field of sign language lexicography tackles issues such as lemmatization, lemma information, and ordering and searching in e-dictionaries (Zwitserslood, Kristoffersen and Troelsgård 2013: 259-283). Among information on sign languages and lexicography, Zwitserslood (2010) writes about situation in the Netherlands and reviews their online dictionary of Dutch Sign Language (NGT). Capovilla et al. (2003) present how Libras went from a printed dictionary to a digital encyclopedia, and even made it possible for deaf quadriplegic users to compose Libras-based sign messages that can be converted to ASL, printed, spoken with digitized speech both in Portuguese and English. Hanke (2004) and Hanke and Storz (2008) describe the more technical side of creating a corpus of technical terms in German Sign Language (DGS) and of writing signs down using the Hamburg Sign Language Notation System (HamNoSys), an alphabetic system describing signs on a mostly phonetic level, first published in 1987. Kristoffersen and Troelsgård (2012) point out hyperlinks and multimedia, search facilities, flexibility, and the ability to meet diverse user needs as particularly useful characteristics of a sign language dictionary.

In our opinion, the contribution of the paper to the sign language lexicography is twofold. First, as already mentioned, the evaluation instrument contributes to the improvement in the quality of dictionary criticism by introducing a framework for description and evaluation of online sign language dictionaries. Second, due to the lack of comprehensive and extensive online sign language dictionaries for many languages, the instrument can be implemented in the initial stages as a tool for the development of a model for these type of dictionaries. By researching relevant literature, the chosen criteria for the instrument are deemed the most relevant.

An instrument for evaluation of online dictionaries of sign languages

1. Intended users of the dictionary:

- a) experts
- b) native signers (the deaf users)
- c) learners of a sign language as a foreign language (for the hearing users)

Rationale: As with all dictionaries, it must be known who the majority of users will be. Will it be the deaf population to whom a sign language is their first language, or an expert in special education or in linguistics, or someone who started a course in a sign language and would like to become fluent. This categorization is based on Varantola's (2002) rough division of dictionary users into professional users, non-professional users, and language learners. To the best of our knowledge, most of the sign language dictionaries have been aimed at all the intended user groups mentioned above, due to the lack of resources needed to create dictionaries for specific users.

2. Type of the dictionary according to the subject field covered:

- a) general
- b) specialized

Rationale: Since there generally aren't too many sign language dictionaries to begin with, most of them are considered general type of dictionaries. However, there are examples like the Institute of German Sign Language and Communication of the Deaf (IDGS) at the University of Hamburg that has been working on the development of dictionaries for specialized areas of sign language use in fields such as computer technology, psychology, joinery, domestic sciences, social work, health and nursing care, and landscape and horticulture (König, Konrad, and Langer 2004).

3. Type of the dictionary according to the norm:

- a) normative
- b) descriptive

Rationale: It is important to identify the function of the dictionary, whether the dictionary is meant to prescribe the correct form(s) of a sign and proscribe others, or whether its objective is to document and describe the usage of a language.

4. Number of languages in the dictionary:

- a) monolingual
- b) bilingual
- c) multilingual

Rationale: Today, the majority of the official spoken languages have their monolingual dictionaries where a word from the language is described using words from that same language. With a sign language, a monolingual dictionary would only be possible and usable in a video format or with the use of notation systems. To the best of our knowledge, there are no monolingual sign language dictionaries (where sign language would be used as the metalanguage). They are usually bilingual – translating from a spoken language into the corresponding national sign language (e.g. from Croatian into HZJ). Multilingual dictionaries can have translations of a sign into several spoken languages or translations of e.g. an English word into signs in different sign languages.

5. Scope:

- a) monoscopal
- b) biscopal

Rationale: According to Hausmann and Werner (1991:2740), a monoscopal bilingual dictionary contains dictionary entries in one language and their translations into another (e.g. from HZJ into Croatian). A biscopal bilingual dictionary contains translations to and from both languages (e.g. from Croatian into HZJ and from HZJ into Croatian), with majority of dictionaries having the two parts separated.

6. Function

- a) for text/sign production
- b) for text/sign reception

Rationale: Another characteristic of bilingual dictionaries is its function (Hausmann and Werner 1991:2741) that indicates whether the purpose of the dictionary is to aid in text production or text reception. The majority of dictionaries try to cover both functions. For bilingual sign dictionaries it is important to identify whether the dictionary can be used for sign production or sign reception.

7. Direction:

- a) monodirectional
- b) bidirectional

Rationale: According to Hausmann and Werner (1991:2742), a monodirectional bilingual dictionary indicates whether the mother tongue of the user is the source or the target language. A bidirectional bilingual dictionary indicates that it is intended for mother tongue speakers of both languages covered. Bidirectional dictionaries usually either don't meet the objectives or have an extensive and complex structure, making the monodirectional dictionaries more user-friendly.

8. User interface design:

- a) overview of the page
- b) simplicity of the design
- c) intuitivity, the ease of use
- d) adaptivity for users with visual impairment (font size, colour contrast)
- e) simple navigation between connected information
- f) user's guide (instructions for use, key to symbols, key to notation system, and abbreviations and content of entries)

Rationale: The design and layout of an electronic dictionary must always keep the needs of their user in mind. Since both the Deaf and the Deafblind use sign languages, the design should be clean with strong contrast and easily accessible possibility to magnify the images and text for visually impaired people. The dictionary options should be easy to use and intuitive to users. Some directions for usage and legends of used symbols should appear on the home page. Since we expect an online dictionary to connect multiple pieces of information and link relevant data together, navigating those links should be fast, clean, and simple.

9. Searching:

- a) direction of the search function:
 - i) monodirectional (from a spoken to a signed language)
 - ii) monodirectional (from a signed to a spoken language)
 - iii) bidirectional
- b) spellchecker
- c) searching through headwords or through whole entries

Rationale: Online dictionaries of spoken languages are almost always bidirectionally searchable. That is rarely the case with sign languages since they are only written down with special notation systems. Sign language dictionaries can make searching by sign possible by choosing elements related to sign form or sign usage, for example handshape, place of articulation, orientation, movement, handedness, mouth movement, region- or age-specific use (Zwitserslood et al. 2013). With that option they become bidirectional. Searching by defined topics could further speed up the process of finding a term particular to a subject field. Spellchecker within the text search option is always an advantage, especially when the user of the dictionary is using his second/foreign language in the search. Searching only by headwords and not searching through whole entries can give fewer results.

10. Search results:

- a) type of information included in the result list
- b) ability to narrow the result list
- c) search relevance marker

Rationale: As with every search result, it is important what type of information is included in the result list. The presentation of search results of online sign language dictionaries can include the following information: photograph, drawing, video, gif, formal notation, ID number, word class, gloss, equivalent(s), mouth action, text description, and topic (Kristoffersen and Troelsgård 2012, Zwitserslood et al. 2013). Another useful feature of the search function is the ability to narrow down a result list (e.g. by elements of a sign or word class). Additional useful information to help the user is the search relevance marker that indicates what results are more relevant to the search criteria (e.g. by displaying three stars for the most relevant search results or one star for the least relevant ones).

11. Entries:

- a) number of entries
- b) can users add entries
- c) amount of free content
- d) can the content be downloaded (image or video of signing a sign)
- e) criteria for ordering the entries:
 - i) alphabetically by the translation into the spoken language
 - ii) by an element of the sign
 - iii) thematically
- f) how the entries were chosen:
 - i) from a corpus
 - (1) are the entries signs of high-frequency
 - ii) from another source
 - iii) are proper names included

- g) content of the entry:
- i) translation of a sign to a spoken language
 - ii) translation of a sign to several spoken languages
 - iii) detailed video of signing
 - iv) detailed image (photograph, drawing, or gif) of signing
 - v) description of signing (elements of the sign) written in a spoken language or as an audio file
 - vi) description of a sign written in a notation system
 - vii) information about mouthing
 - viii) context, the sign in use
 - ix) grammatical information (e.g. modifications, numeral incorporation, classifier predicates, etc.)
 - x) sense division (e.g. polysemy, homonymy)
 - xi) geographical information about a sign
 - xii) examples
 - xiii) collocations
 - xiv) idioms
 - xv) lexical relations (i.e. synonyms, antonyms, hypernyms, etc.)
 - xvi) etymology of a sign
 - xvii) semantic and encyclopedic information
 - (1) images (photograph, drawing, or gif) of sign meaning
 - xviii) ID number
 - xix) topic

Rationale: Does the dictionary have a big or a small entries list? All sign language dictionaries at present time have a much smaller number of entries than dictionaries of spoken languages – many meanings are crowded in the same entry because they can be seen as a minor modification of a sign or not mentioned at all. How is the sense division handled, i.e. are the meanings a sign can have found in the same entry? Are selected entries used frequently by the Deaf? Since sign languages are often not standardized and not seen nor used in the media¹³, the (regional) Deaf community could contribute to such dictionaries by broadening the number of entries and linking synonyms, but there needs to be a (manual or automatic) validation process in place. Is all content free? For users of a sign language it is useful to be able to download and/or print out some content, especially images and videos. If there is a list of entries, they are ordered alphabetically by the translation into a spoken language, by a sign's elements, or by topics, although ordering is less of an issue in e-dictionaries than in traditional printed ones. Unless corpus studies have been carried out, sign frequency information is not usually available. The

¹³ HZJ can only publicly and officially be seen in public television on channel 4 in "Vijesti uz hrvatski znakovni jezik" (News with Croatian sign language) and "Dnevnik 2" (the main news program), where an interpreter translates what the speaker says.

frequency of the spoken language equivalent is not the same as the frequency of the sign. Besides a sign's translation into at least one spoken language, an entry in an online sign language dictionary should have a video of the most frequent ways of producing each sign, which includes the most frequent modifications and variations of the sign that depend on the context. A description of the sign's movements written in a spoken language or in an audio recording can be of much help to the partially blind. Signs don't have pronunciation but they do have a *mouthing* segment – the signer shapes his lips as if silently pronouncing some vowels, syllables, or words¹⁴. Mouthing is not obligatory for all signs and can depend on context. One sign produced in isolation can have extensive mouthing, while produced in context may not show any mouthing at all (e.g. Schermer 2001). Content such as examples, collocations, idioms, and lexical information (i.e. synonyms and antonyms) enrich dictionaries, and are especially valuable for language learners. An additional piece of information that can be useful since sign languages develop naturally in any group of deaf people is the information about the sign's geographic spread.

12. Evaluating extra content:

- a) word/sign of the day
- b) thesaurus
- c) grammatical description of the language
- d) orthography description
- e) word/sign games
- f) related entertainment
- g) links to other dictionaries or sources

Rationale: Dictionaries can be enriched by some extra content such as word/sign of the day, thesaurus, word/sign games, some related entertainment and links to other dictionaries which is especially helpful for language learners, but also engages frequent users in a fun way (i.e. entertainment value).

13. Evaluating quality of the content:

- a) who are the compilers
- b) are there enough entries considering who the intended user is
- c) accuracy of entry information (e.g. translations, sign variants, description of production of the sign, grammatical information, usage information)
- d) if the dictionary is corpus based: is there information about the corpus and how it was used
- e) are there hyperlinks to the corpus

Rationale: Due to the authoritative role that the dictionaries often play, the content of entries must be of high quality – a dictionary is a guide for its users and therefore its translations and additional information must be accurate, and

¹⁴ Schermer, Trude. The role of mouthings in Sign Language of the Netherlands: Some implications for the production of sign language dictionaries. *The Hands are the head of the mouth: The mouth as articulator in sign languages* (2001): 273-284.

the members of the editorial team (i.e. the compilers) must be known. Furthermore, it is essential that the dictionary has enough vocabulary coverage for the intended user. If the dictionary is corpus-based, information about the corpus must be given (e.g. when the data for the corpus was collected, what topics the data covers, how many signs are in the corpus). In addition to information about corpus data, it must be clearly indicated how was the corpus used (e.g. for lemma selection, for usage information, for example sentences, for collocations selection, for division into senses). Information about the corpus and connections of entries to the corpus make the dictionary more reliable and trustworthy.

Conclusions and future work

The goal of this paper was to examine evaluation criteria for printed and online dictionaries, and to extract the ones relevant for a dictionary of a sign language, thereby proposing an instrument for evaluation of such dictionaries. By introducing a framework for description and evaluation of online sign language dictionaries, the instrument contributes to the improvement in the quality of dictionary criticism for this type of dictionaries. Another goal was to point out why sign language dictionaries should transcend the traditional printed formats. The evaluation criteria described in this paper will be further used as an evaluation instrument in evaluations of some existing online sign language dictionaries to assess the instrument. The instrument can be implemented in the initial stages as a tool for the development of a model of online sign language dictionaries, and therefore will be the foundation for the construction of an online HZJ dictionary. Considering the lack of HZJ dictionaries which could be useful to a broader audience – and not just to hearing people who have begun learning HZJ – it is our hope the evaluation instrument provided in this paper, and the model that will be developed based on this instrument, might help make a professional, well thought out, and beneficial dictionary of HZJ.

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