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CREATING A DICTIONARY OF A SIGNED MINORITY LANGUAGE

A bilingualized monolingual dictionary of German Sign Language

Abstract Lexicographers working with minority languages face many challenges. When the language in question is also a sign language, circumstances specific to the visual-spatial modality have to be taken into consideration as well. In this paper, we aim to show and discuss which challenges we encounter while compiling the Digitales Wörterbuch der Deutschen Gebärdensprache (DW-DGS), the first corpus-based dictionary of German Sign Language (DGS). Some parallel the challenges minority language lexicographers of spoken languages encounter, e. g. few resources, no written tradition, and having to create one dictionary for all potential user groups, while others are specific to sign languages, e. g. representation of visual-spatial language and creating access structures for the dictionary.

Keywords Sign language dictionary; minority language; bilingualized dictionary

1. Introduction

This contribution discusses issues concerning the creation of dictionaries for signing minorities with a focus on the German Sign Language (DGS) community and shows possible solutions to the challenges at hand. Sign languages in general are lesser-resourced languages. They are embedded in hearing-majority communities, and deaf communities have developed their own visual languages and cultures. Only recently has the collection of sign language (SL) corpora become technically feasible, because digitalization has made it possible to collect, store and process big amounts of video data. The DGS corpus was compiled for lexicographic and documentation purposes. It is the foundation for the *Digitales Wörterbuch der Deutschen Gebärdensprache – Das korpusbasierte Wörterbuch DGS* (*DW-DGS*). This will be the first dictionary of DGS that is corpus based and probably will stay the only one for a while. Like other minority language dictionaries, the DW-DGS will need to serve different user groups at once.

This text contains a theoretical part giving background information on minority languages and SLs in particular, as well as a brief overview on SL lexicography. In the second part, challenges and the respective solutions for the DW-DGS are discussed.

2. Background

2.1 Sign languages

Sign languages are visual-spatial languages and use several channels (hands, face, mouth, body posture, eye-gaze) at the same time for communication. With multiple articulators available, SLs allow for a high degree of simultaneity. The lexical meaning usually is carried by the manual component of signing sometimes in combination with a mouthed word (mouthing) whereas non-manuals often but not exclusively carry grammatical information.

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Manual signs together with other bodily actions can be used to create productive and often iconic signs. Accordingly, SLs allow for a high degree of iconicity. Due to these characteristics, SLs differ greatly from the surrounding spoken majority languages.

SLs exhibit a high level of variation and fast-paced language change. While politically or educationally motivated discussions concerning standardization of SLs exist on the one hand, on the other hand the language community itself highly values the regional variation of signs. To date, no standard for DGS has evolved, though levelling effects may increase in the future due to higher mobility and facilitated inter-regional exchange by technical means like video chat.

SL research is a relatively new field in linguistics, dating back into the 1960s for the USA and the 1980s for Germany. In the beginning stages, scientists were mostly concerned with proving that SLs are natural languages as they were for a long time disregarded as primitive gestural and non-linguistic systems (cf. McBurney 2006, p. 311). Since then, SL research has come a long way and a considerable number of SLs have been recognized as languages by the respective governments. New technologies, especially digitalization and the possibility to record and store large amounts of video data, strengthened SL research.

Due to the lack of a widely used writing system, film is still the preferred means for capturing, documenting, and representing SLs. Technologies based on writing cannot be applied to SLs, and annotation usually has to be done manually. SL dictionaries thus need to find a way to represent and describe the SL adequately (more on this in chapter 3.3).

2.2 Minority languages – spoken and signed

The idea of majority and minority languages is closely tied to the development of nation states, where often only one language was selected as national language (Wright 2018). People not speaking that national language became minorities, a process which entailed negative attitudes towards the minority language and little institutional support in many cases (Dorian 2006, p. 440). First international laws to ensure non-discrimination of minority members were established starting in the late 1950s, but only in 1992 would the UN declaration on the Rights of Persons Belonging to Ethnic, Religious and Linguistic Minorities contain requirements for governments "to promote as well as protect the identity of minority groups" (Wright 2018, p. 644).

In comparison to majority-language communities, linguistic minorities have a smaller number of language users. Minority languages are also usually spoken in a specific area of a country. Most indigenous languages that are considered minority languages do not have a written tradition, and transmission is provided by face-to-face interactions from one generation to another.

Deaf communities communicating in signed languages exist all over the world, and generally constitute linguistic minorities within their countries. These minorities do not differ from the population by territorial or ethnic origin but evolved from deaf people gathering and finding their own way of communication – a visual language with a visual culture. This view of the deaf community as a linguistic minority and not a group connected via disability and hearing loss has arisen in the 20th century, fought for by deaf activists and allies. In the wake of these struggles, legal language recognition of SLs started in the 1990s (De Meulder/Murray/McKee 2019).

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Sign language minorities differ from other linguistic minorities by the way of language transmission and the constitution of its members. There is only minimal parent-to-child transmission, as over 95 percent of deaf children are born to hearing parents and thus do not have immediate primary language access to a signed language (Hartman/Nicolarakis/Wang 2019, p. 3; Plaza-Pust 2016, p. 18). Generally, they acquire a SL from their peers at school or once they become acquainted with signing people (Plaza-Pust 2016). The spoken majority language is not fully sensorily accessible to deaf or hard-of-hearing children, even if they are equipped with hearing assistance systems such as digital hearing aids or cochlear implants from early on (Hartman/Nicolarakis/Wang 2019). This demographic situation may account for a comparably late SL acquisition of many deaf children, sometimes following an unsuccessful trial of spoken language acquisition (ibid.). In the context of SLs, the term L1 denotes the SL as the language of choice that is fully visually accessible and satisfies expressive needs. It is associated with a sense of belonging and emotional connectedness. It is the language of in-group everyday use rather than the language that was acquired first.

2.3 DGS language community

Sign language communities are heterogeneously composed. They comprise all people who know and use the local SL and belong to the visual culture; this includes hearing children of deaf parents and hearing partners who sign, as well as deafened persons who sign. To be deaf or hard of hearing is neither a prerequisite nor sufficient to belong, and there are deaf/hard-of-hearing people who have not acquired SL or who prefer oral and written communication in the majority language.

In Germany, DGS was recognized in 2002 within a law concerning disability rights.[1] It does not have the status of an official language, but its status provides the legal framework for some accessibility measures (e. g., signed video translations of governmental internet sites). The recognition certainly has improved the situation of deaf persons, but the consequences of decades of language suppression especially through the educational system are still present (Plaza-Pust 2016). It was and is believed by some scholars that learning a signed language would prevent or impede the acquisition of spoken language (cf. Hall/Hall/Caselli 2019). The "oral method", focusing on spoken language only, was installed at boarding schools, and bilingual schooling in German and DGS only started in the early 1990s in experimental settings (Plaza-Pust 2016). Today, bilingual education "continues to represent the exception rather than the norm" (ibid., p. 449). Another factor impeding the transmission of SL today is the closure of special schools for the deaf in favor of inclusion or mainstreaming, leading to the isolation of deaf individuals and, in consequence, language deprivation.

Members of the signing community live in a permanent language contact situation, where speaking and writing in the majority language prevails. German is taught in school and is the language of education. Consequently, German signers are bilingual to a certain degree. Print literacy in the majority language is not easily acquired for deaf people. Nevertheless, deaf people use writing of the majority language in text-based communication devices, e. g. through SMS or e-mail for communication with hearing persons as well as among themselves (Power/Power 2004; Maxwell 1985) and as a means of taking notes. Also, deaf people

[1] See BGG, §6 https://www.gesetze-im-internet.de/bgg/index.html#BJNR146800002BJNE000601119; §6 https://www.gesetze-im-internet.de/bgg/__6.html.

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are used to subtitled television ("caption literacy" according to Paul 2018) and thus are acquainted with the semantics of German and the written language of the majority. Consequently, the deaf community encompasses a wide range of reading and writing skill levels.

Studies on literacy of deaf people have found that reading comprehension and writing skills are often delayed or below average, concluding that many deaf people are functionally illiterate (cf. Harris/Terlektsi 2021, p. 12). Adopting a different, skill-oriented perspective and taking into regard the daily means of communication (print, electronic media, subtitled videos) along with signing, we would rather talk of a functional bilingualism observable in deaf individuals, instead of highlighting underachievement.

2.4 Sign Language lexicography

Lexicography of under-researched and lesser-resourced languages, especially those without a written tradition, has to cope with a number of circumstances: written sources are scarce or missing altogether, corpora are small or non-existent, language-specific NLP such as automatic PoS taggers and lexicographic word profile tools are often not available. Exclusive face-to-face language use and previously undocumented language structures pose challenges to researching and describing sentence grammar including boundaries, syntax, and PoS-categories. Often lexicographers cannot build on pre-existing comprehensive and commonly accepted descriptions of their object language's grammar. Generally, all of these challenges also apply to SL lexicography.

In addition, SL lexicography has to deal with the circumstance that it cannot resort to an established and adequate writing system. This makes corpus design, annotation, as well as corpus analyses for lexicographic descriptions difficult and cumbersome. Only recently have corpora become available. As a consequence, working corpus-based and applying practices and methods from spoken language lexicography, e. g. using concordances, collocational analyses, and the like for word sense discrimination is rather new to the field and only just evolving (see for example Langer/Müller/Wähl 2018; Langer/Schulder 2020).

For a dictionary design not having a writing system means in essence that a written representation of signs is not available to represent example sentences, and to function as the guiding and ordering elements (lemmata, elements representing cross-reference addresses) in the macro- and microstructure of the dictionary. Related to this question is the issue of ordering or – in electronic dictionaries – searching via sign form in order to enable a bidirectional use also from sign to word in bilingual dictionaries.

Modern SL lexicography is a field that is still new and developing. It is dedicated to finding adequate solutions for the challenges SLs present as object languages. The *Dictionary of American Sign Language on Linguistic Principles* (DASL) (Stokoe/Casterline/Croneberg 1965) marks the beginning of modern SL lexicography. The DASL was the first profound SL dictionary that took the manual signs of a SL as basis for their lexicographic description of their properties and looked at units of ASL from a monolingual perspective. It provided a search by phonological parameters (such as movement, handshape, hand orientation, and location) through the macrostructure via notation and included information on meanings and usage. Stokoe/Casterline/Croneberg were also the first to attempt to base their lexicographic descriptions on a corpus of filmed signing.

SL dictionaries prior to the DASL – but also many SL dictionaries of more recent times – are bilingual unidirectional sign collections pragmatically compiled on the grounds of intro-

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spection. They basically consist of spoken language word lists combined with matching form representations of sign equivalents. Usually, no further information on the signs' other properties is provided. Collections of this kind tend to present one sign equivalent for each word – thus implying a 1:1 relationship of words and signs and very rarely do they offer searchability for sign form (Stokoe 1993, p. 138; Zwitserlood/Kristoffersen/Troelsgård 2013, pp. 260 f.).

SL dictionaries following the approach layed out by the DASL on the other hand look very different as they focus on the signs and their meanings and properties from a monolingual perspective. Several of this kind have been produced since – e. g. Johnston (1998) for Auslan, ODT for Danish SL. In recent larger dictionary projects such as the CDPSL and the DW-DGS, new possibilities are being explored of how to base entry information on corpus data. As the electronic medium invites the inclusion of signed information recorded on film, new dictionary structures are being developed to integrate these information types alongside with written information into entries and access structures.

2.5 User groups of minority language dictionaries

As funds are scarce, dictionary makers for minority languages, who tend to be non-native speaker linguists, missionaries, or members of the language community (Bradley 2015), get one shot to complete a one-size-fits-all dictionary without the prospect of being able to update it (Cristinoi/Nemo 2013). They have to serve as many user groups as possible despite their diverse needs: the language community, language learners (Prinsloo 2012), and the academic community (Mosel 2004). In the case of signed minority languages, this list can be extended to include language professionals such as SL teachers and interpreters, hearing people in contact with deaf signers including those with close contact such as hearing parents of deaf children, service providers to the deaf community, and finally the interested public (compiled from Moskovitz 1994; Hilzensauer 2000; Vale 2015; McKee 2017). Such a dictionary has many purposes (Cristinoi/Nemo 2013): research, documentation, preserving linguistic and cultural heritage, helping native speakers communicate in the dominant language, helping learners, and, at least for spoken languages, providing a stable orthography.

Different user groups have diverse needs and wishes regarding the features of a SL dictionary. Features frequently discussed in this context include the ordering of entries, the mode of sign representation (picture, drawing, video), the type(s) of search function, and the different information types included in an entry (Hilzensauer 2000; Moskovitz 1994). Unfortunately, published surveys or studies on SL dictionary usage are few and far between. Table 1 summarizes some of the results of three studies. Moskovitz (1994) is a questionnaire inquiring about participants' preferences and expected usage ahead of the construction of a dictionary. Kristoffersen/Troelsgård (2012a) is a questionnaire for users of a published online dictionary of Danish Sign Language (DTS). Vale (2015) is a study of the actual usage of an online dictionary using log files and interview data.

The dictionary is used the most for…	…learning SL, as a quick reference (Moskovitz 1994) …learning SL, for fun (T. Troelsgård, personal communication, March 2022) …preparing for specific communicative situations (Vale 2015)

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The dictionary is most used in the direction of…	…English to NZSL (Moskovitz 1994) …Danish to DTS (Kristoffersen/Troelsgård 2012a) …English to NZSL (Vale 2015)
The preferred information types are…	…sign grammar, synonyms, production instructions, English usage examples (Moskovitz 1994) …sign videos, signed example sentences (Kristoffersen/Troelsgård 2012a) …sign videos (Vale 2015)
The lesser used/desired information types are…	…English phonetics, information on other SLs (Moskovitz 1994) …hyperlinks: synonyms, concordances, information on the Danish words (Kristoffersen/Troelsgård 2012a) …hyperlinks (Vale 2015)

Table 1: Summary of three surveys/studies on SL dictionary usage

Based on these results, SL learners are SL dictionaries' first and foremost user group. Searches are usually carried in the direction from spoken language to signed language. However, both of these findings may change over time, as deaf people become more experienced in the handling of dictionaries and all potential users learn how to use sign-based search functions, which can seem unusual and intimidating at first. Regarding the entries' contents, the focus is on information specific to the given sign rather than on other languages such as the surrounding spoken language. Interestingly, Kristoffersen/Troelsgård (2012a) point out that the lesser used information types in the ODT are presented in the form of links. Vale (2015) also finds that hyperlinks in entries are seldomly clicked on. This shows that the form of presentation of the information is very influential and that information that is not directly embedded in the entry is less likely to be looked at by the user.

3. DW-DGS

The *Digitales Wörterbuch der Deutschen Gebärdensprache – Das korpusbasierte Wörterbuch DGS – Deutsch* (*DW-DGS*) is currently being compiled based on the data of the DGS corpus. Dictionary and corpus are produced by the DGS-Korpus project (http://dgs-korpus.de). The DGS corpus is the largest corpus available for DGS and has reached a substantial size of more than 670.000 tokens (as of 2022-03-25). It was designed to serve as a general reference corpus for DGS and to provide data for the compilation of the DW-DGS.

3.1 Dictionary type

The DW-DGS is a corpus-based, monolingually oriented bilingualized general descriptive dictionary of DGS. For the first time, DGS signs, their meanings, grammatical properties, and usage patterns can be studied in their linguistic context with a corpus linguistics approach. Working corpus-based is a requirement for reliable lexicographic descriptions (cf. Atkins/Rundell 2008, pp. 53 f.). Thanks to the robust evidence that the corpus provides for variation in DGS, the DW-DGS is able to include both lexical and phonological variation and thus avoids being a standardizing influence as much as possible.

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The DW-DGS takes a monolingual perspective in that it focuses on DGS, the minority language, as the object language of interest. Creating a monolingual dictionary for an under-resourced language is a means to support self-acknowledgement, empowering the members of a cultural and linguistic minority, and promoting a positive attitude towards the minority language within the majority group (Erlenkamp 1998 for DGS). To base lexicographic descriptions on corpus data collected from members of the signing community is a prerequisite for adequateness and reliability of dictionary contents and, through participation, respects and reflects the cultural status of DGS within its minority language community. To raise accessibility and impact, the DW-DGS is not only a monolingually focused dictionary but includes some bilingual features. It provides German translation equivalents and a German index.

Like most other general SL dictionaries, the DW-DGS has opted for a hybrid version between a monolingual and bilingual dictionary. It could be called a *bilingualized monolingual dictionary* or, for having the definitions given in German, a *bridge dictionary* or a *semi-bilingual dictionary*. Such a hybrid approach is not unusual for SL dictionaries, see for example the online Danish Sign Language Dictionary (cf. Kristoffersen/Troelsgård 2012b, p. 302). Such a bilingualized dictionary is, generally speaking,

> one that offers T[arget]L[anguage] equivalents while retaining the S[ource]L[anguage] definitions from the monolingual dictionary on which it has been founded. Such dictionaries are always monodirectional and monoscopal (L2-L1), with only an L1-L2 index in place of a regular L1-L2 section. (Adamska-Sałaciak 2013, p. 219)

In the sections to come, we will explicate in which way this also applies to the DW-DGS. This bilingualized monolingual solution seems to serve the members of the minority SL community as well as learners and other DGS users from the surrounding majority language community.

As already stated, in many cases the lexicographers working on a dictionary of a minority language are not L1 speakers or signers of the object language. The same is true for the DW-DGS, but the project aims to involve the community as much as possible in the compilation process and production of the dictionary. Deaf colleagues and student assistants in the project mainly work on annotation, but also contribute to the lexicographic work (e. g., preparation of examples sentences; questions on the use of a sign; discussion of issues relevant to the community). From early on, the project also involved deaf L1 consultants, the focus group. The lexicographic team of the DW-DGS has regular meetings with the group and discusses topics such as dictionary information types, structures, and layout, or asks for feedback on intermediate stages of the DW-DGS. Thus, the DGS community is involved in various stages of the dictionary-making process.

3.2 Languages in the DW-DGS

With DGS as the object language in focus, information is centered around signs and their use. Object language items are presented with micons (see below) and videos to provide a clear rendering of the form. Object language items are the lemma sign and its forms (variants and modifications), usage examples, collocations and semantic preference patterns, synonyms and antonyms, multi-sign expressions, and cross-references to signs with similar, related, or identical form.

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German is included as second object language to enable bilingual use of the dictionary but is not treated in depth, as it is a well-resourced and documented language. Consequently, we supply translation equivalents for the different senses of a sign, but add little information on the use of these equivalents; instead, we offer a link to the respective entry in the Digitales Wörterbuch der deutschen Sprache (DWDS), an online corpus-based dictionary of German. The DGS examples are also translated into German.

In monolingual dictionaries of widely known languages with writing systems, metalinguistic information normally is given in the same language as the object language. Using a SL for descriptions means resorting to video recordings due to the lack of a functional writing system. However, video recordings are not suitable for every purpose. As a text type, neither the dictionary as a whole nor an entry is read from the beginning to the end, but rather consulted selectively. A presentation of one lengthy video or several shorter video clips would not satisfy the need of the scanning eye. Written language, as a fixed source of information, is needed at least for structural information such as headers of information types (see Kristoffersen/Troelsgård 2012, p. 312), but also for more content-related information. We thus use written German as the language of description.

There is another reason for this decision. Using a minority language for description severely limits the possible range of users. Since the DW-DGS is a hybrid dictionary including bilingual features, the second object language, German, is another option. All headers of information types and signposts for a quick overview of senses but also additional information on use, grammatical notes and the definitions are presented in written German. In using German as the descriptive language, we rely on the bilingualism of deaf users and a larger audience can be reached.

3.3 Sign representation and visual information

Sign language dictionaries need to prioritize visual information for two reasons: the visual nature of their object languages and the visual culture of the target group.

As visual-manual languages, the meaning-distinguishing units in SLs depend on the parameters of movement, handshape, hand orientation, and location. A digital format is thus the ideal choice for a SL dictionary. Signs can then be represented in a direct, detailed, and accurate way through moving images.

As the DW-DGS is an online dictionary, we are able to incorporate videos in our entries. We use videos to show different sign variants and signs that are cross-referenced in the entry (e. g., synonyms). The DW-DGS furthermore includes video examples, taken from the DGS corpus, that show the sign being used in context. As full videos cannot be incorporated in every part of the dictionary, we additionally use micons (moving icons) as small moving representations of signs (see fig. 1).

Fig. 1: Micon of Entry 329

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The movie thumbnail in the micon shows the sign production when the mouse is hovering over it, giving an impression of the sign's form. Clicking on the movie thumbnail opens the corresponding movie in the movie display area. Hovering over the ID number opens a preview box with the signposts of the sign's senses, giving the user an impression of the sign's meaning. Micons appear in all parts of the dictionary, as they function as small but comprehensive representations of signs.

The second kind of visual information we offer in the dictionary are visualizations of information given in writing. Deaf people, who are part of a visual culture, are a major target group for SL dictionaries. While their functional bilingualism gives them access to the dictionary through written language as well, additional visualizations of certain information types help with accessing that information. We create visualizations in the form of maps showing the regional distribution of signs. Different colors in these maps correspond to different regional signs denoting the same concept (see fig. 2). Geographical signs such as continents, countries and cities are likewise visualized on maps. In this case, the maps are

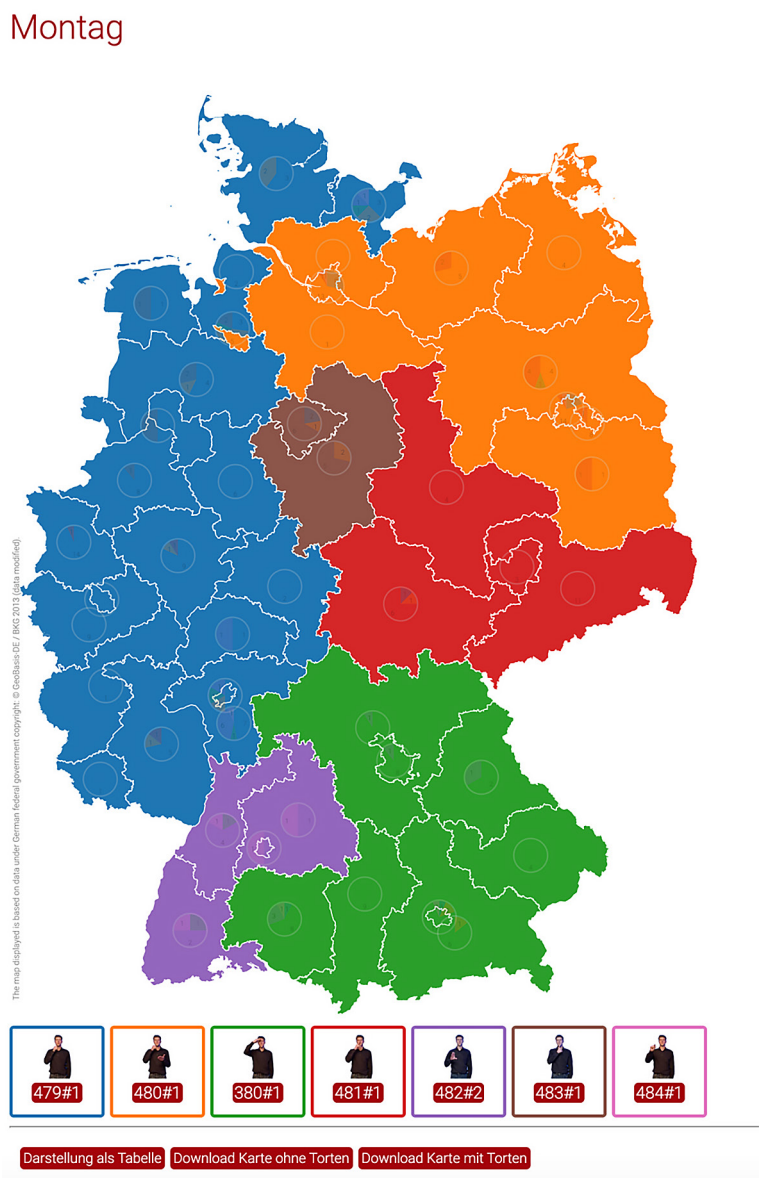

Fig. 2: Map of regional signs denoting 'Monday'

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geographical maps and the geographical points with entries are represented by dots. Hovering over an area makes the micon of the corresponding sign appear.

We also have a visual access structure to the dictionary in the form of a graph showing the relations that signs have to each other. Entries are represented as dots that are connected by differently colored lines. The colors correspond to different relations such as being the same or similar in form, or containing synonymous senses. The graph is interactive in that different types of relations can be turned on and off and thus invites a playful exploration of the dictionary.

3.4 User groups of the DW-DGS

The DW-DGS is the first corpus-based DGS dictionary and will likely stay the only one of its kind for quite some time. It thus has to serve many user groups at once, a challenge it shares with many other minority language dictionaries. Trying to serve many diverse user groups, a balance has to be found between giving enough information for every user and not giving so much information that it becomes overwhelming for other users. User groups of the DW-DGS include L1 DGS signers, deaf students, L2 learners of DGS, DGS teachers, DGS interpreters, linguists, and the interested public.

Different user groups are served by different information types in the DW-DGS. In table 2, we highlight both monolingual and bilingual uses of the dictionary and state what information types we offer to different users. Neither the use cases nor the information types shown here are meant to be exhaustive.

	dictionary function	**search function**	**relevant information types**
Monolingual			
L1 DGS signer	reception	DGS, form-based	definition, synonyms
	production	DGS, form-based; subject area index	synonyms, variant forms, regional variants
L2 DGS learner (advanced)	reception	DGS, form-based	definition, synonyms, examples
	production	DGS, form-based; subject area index	synonyms, collocations, examples
Bilingual			
L1 DGS signer	reception: German -> DGS translation: German -> DGS	German index	DGS equivalents (signs), synonyms
	production: DGS -> German translation: DGS -> German	DGS, form-based	German equivalents, example translations, links to the DWDS
L2 DGS learner	reception: DGS -> German translation: DGS -> German	DGS, form-based	German equivalents, definition
	production: German -> DGS translation: German -> DGS	German index; subject area index	DGS equivalents (signs), synonyms, examples, collocations

Table 2: Selection of use cases for the DW-DGS

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To illustrate how individual information types help in specific use cases, we will now describe some of these cases in detail.

The first case could be a deaf person (L1 DGS) who is about to move to a new city. They might want to look up some of the signs used in that region in particular. Weekdays, for example, are highly regional signs in DGS, so this user may use the form-based search function to find their known sign for 'Monday'. In the synonym section of that entry, they would find a link to a map showing all of the regional signs for this concept. They can then move to the entry of the sign used in their new home city. Similarly, they may want to learn the name signs of the cities in that area. They could then use the map of Germany in the appendices which shows all of the geographical name signs described in the dictionary.

A second case could be a hearing person (L2 DGS) with deaf friends who is very interested in sports and would like to sign with their friends about their hobby. They search the subject area index for the topic "sports" look at the signed videos and example sentences in the corresponding entries to learn how to use them. They will not be able to learn all of the relevant signs this way, but they can establish a good basis to start the conversation. This mirrors one of the typical use cases described in Vale (2015) for the NZSL dictionary in which people would look up signs around certain topics in order to prepare for expected communicative situations.

While it is not possible to create a dictionary that is optimized for all user groups at the same time, we nevertheless strive to offer valuable information for each one. Information types like synonyms, collocations, and examples are particularly valuable assets of the DW-DGS, as they provide insight into the sign's meaning in DGS and help differentiate the senses of a sign. From that perspective, they are ideal for L1 users. However, they are just as helpful for L2 users, albeit in different ways. These information types provide insights into contexts of the actual usage of a sign and help extend the learner's vocabulary. Thanks to our data basis, the DGS corpus, we are able to give valuable information in this area. The other side of the coin is that the dictionary is not optimized for the German-to-DGS direction of use. The German index is simply a collection of the translational equivalents given in each sign entry, that is, it is not systematically built and incomplete with regard to included words and their senses.

4. Conclusion

Building a dictionary for a sign language comes with certain challenges: some based on the aspect of it being a minority language (lack of resources, many user groups), others based on the specific community structure of the L1 community (visual culture, functional bilingualism), and again others based on the visual-manual modality of the language (lack of writing system, visual representation). We have described how we tackle each of these challenges in the DW-DGS by compiling a corpus-based dictionary that is fit for many user groups due to using both DGS and German, exact sign representations, and visualized information.

The future will show how our dictionary is used by different user groups and in how far our efforts prove successful. As of now, preliminary entries of the dictionary are available online, allowing us to get feedback from the language community and the general public. Reactions have been positive, though they have also shown that there is in fact a learning curve on part of the users, who are not used to navigating such dictionary structures. There

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is however a lot of interest in the contents of the dictionary and L1 signers especially are excited to see their language described. We are happy to be able to get feedback on these matters during the compilation of the dictionary and look forward to seeing the reception of the final product.

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