Elicitation Tasks and Materials designed for Dicta-Sign's Multi-lingual Corpus

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Abstract

This paper presents elicitation tasks and materials designed for the Dicta-Sign project. Within the framework of the project, sign language corpora are being compiled for four European sign languages. The aim for the data collection was to achieve as high a level of naturalness as can be achieved with semi-spontaneous utterances under lab conditions. Therefore, informants were filmed in pairs interacting with each other. With respect to parallelisability, elicitation tasks had to be designed that result in semantically close answers without predetermining the choice of vocabulary and grammar. The tasks developed for this purpose cover different interaction formats ranging from monologues to sequences of very short turns, also with different levels of predictability. The materials designed as well as experiences gained adjusting and using the material for Dicta-Sign's different target languages are illustrated in this paper.

1. Introduction

The Dicta-Sign project, which started in January 2009, has the major objective to enable communication between Deaf individuals by promoting the development of natural human computer interfaces for Deaf users. It will research and develop recognition and synthesis systems for sign languages at a level of detail necessary for recognising and generating authentic signing. Research outcomes will be integrated in three laboratory prototypes:

- A Search-by-Example Interface to a Multilingual Lexical Database
- A domain-specific Sign-Language-to-Sign-Language Translator
- A Sign-Wiki (a signing avatar presenting the information).

Dicta-Sign deals with four European sign languages: British Sign Language (BSL), German Sign Language (DGS), Greek Sign Language (GSL) and French Sign Language (LSF). As one of the first steps, sign language video corpora have to be compiled for all of the target languages consisting of about 5 hours of annotated video per language. In the currently ongoing data collection Deaf informants are filmed in pairs, with each recording session lasting about two hours. Elicitation tasks and materials were developed specifically for the project's purpose, aiming at building corpora parallelised as much as possible.

2. Corpus Content

Parallel corpus collection for sign languages has so far been undertaken only in minimal sizes or for spoken language simultaneously interpreted into several sign languages, but not for semi-spontaneous signing by native signers. The "oral" nature of sign language as well as the risk of influences from written majority languages complicate the collection of parallel corpora. In fact, corpus planning needs to balance between naturalness of the data to be collected and the degree of parallelisability of the data across languages. The decision taken for Dicta-Sign was to aim at as high a level of naturalness as can be achieved with semi-spontaneous utterances under lab conditions. One key point here was to film Deaf informants in pairs, interacting with each other. With respect to parallelisability, elicitation tasks had to be designed that result in semantically close answers without predetermining the choice of vocabulary and grammar.

The domain selected for Dicta-Sign is travel across Europe. This is a domain of interest for Deaf people, and it combines general knowledge with personal experiences. On the sign language side, this domain offers great potential to elicit signing space construction in various dimensions for all of the target languages, but also allows for elicitation formats coming close to the goal of a parallel corpus.

The elicitation tasks are targeted towards a session length of about two hours. With a target number of sessions of eight (i.e. sixteen informants) for each target language, this will result in video material well beyond the target size of the corpus (i.e. 5 hours from 10 different signers per language). While it is highly unlikely that all recordings can be annotated later in the project, this approach also leaves room to exclude parts of the corpus data if needed.[1]

[1] This might become necessary for a number of reasons, e.g. one of the informants revealed very private personal experiences that he or she later prefers to be excluded from the corpus to become publicly available, or it turns out that an informant's language fluency is not as expected. Also, the size leaves more flexibility in choosing data regarding the parallelisability of the corpus.

3. Tasks and Materials

Based on experiences gained from elicitation of spoken languages (see e.g. Gass & Mackey, 2007) as well as signed languages (for a recent survey, see Hong et al., 2009), a variety of tasks was designed for the Dicta-Sign corpus elicitation. The tasks cover different interaction formats ranging from monologues to sequences of very short turns, also with different levels of predictability. They include communication for transport by different means and contexts as well as related personal experiences. The elicitation materials are of different media formats and at various levels of complexity. In each session ten different tasks are to be performed, each of them planned to have a duration of about five to ten minutes, thereby switching roles between the informants several times during a recording session. Descriptions of the tasks as well as examples of the materials are given below.

3.1 Route Description

Two of the tasks developed for the Dicta-Sign corpus are based on maps. It was first considered to use an adaptation of the task described for the HCRC Map Task Corpus (cf. Anderson et al., 1991). However, pretests revealed problems arising from the visuo-spatial modality of sign languages: Instead of providing domain-specific vocabulary (i.e. describing the route), informants made extensive (analogue) use of the signing space. Moreover, informants had to focus strongly on the map provided which resulted in a reduction of eye contact between the dialogue partners. Another problem occurred due to the design as a dialogue task: The information follower needs to use a pencil and starts signing while holding it, which makes the data largely unusable. A task design that provides the required vocabulary but focuses on monologue data was therefore required. In order to avoid the problems found, a different Map task was therefore developed for the Dicta-Sign elicitation as described below.

3.1.1 City Map

Based on a map provided, one of the informants has to describe a walk through the city and to name several landmarks. The map includes streets of different sizes, a footpath, bridges, traffic lights, pedestrian crossings and a roundabout. The informant serving as the information giver has a route marked on her/his map as well as several landmarks (e.g. camping site, café, post office, Deaf club, etc.). For the information follower a map is provided on paper which has a numbered list of the same landmarks on the side of the map but no route. Taking off from the starting point marked on both maps the information giver's task is to describe the route displayed on the map. Whenever a landmark is passed along the route, the information giver is asked to tell the information follower what it is and where exactly it is located. The latter is supposed to follow the route descriptions and note on her/his map where the landmarks are to be found.[2]

Language data resulting from this task are expected to contain route description vocabulary and an extensive, mostly discrete, use of signing space. Additionally, details of the map as well as the landmarks provide domain specific vocabulary.

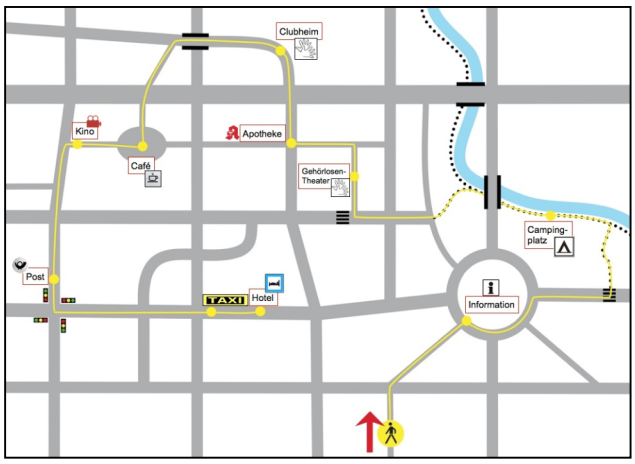

Figure 1: City map (German material for informant A)

3.1.2 Public Transportation Map

In this task the informants are asked to explain how to get from a certain place to another using public transportation. A map is provided to both of them displaying different means of public transport (underground, connecting busses, closed lines, possibility of walking) and stations (airport, town hall, train station, market, etc.). Station names have been chosen that can mostly be signed (avoiding extensive use of fingerspelling) and are well known or easy to read (avoiding negative influence of written language).

The task includes five subtasks where different stations are given as departure and destination points. For each subtask the names of the two stations in question are first shown to the informants in written form, followed by a presentation of the map that includes flags indicating these stations. The departure/destination points are chosen in a way to allow for several possibilities to reach the destination. Each of the informants is asked to suggest one possible route per subtask. The design of the task also allows for discussion between the informants about their routes.

The use of domain specific vocabulary is expected for this task as well as signing utterances showing the use of different means of transportation (especially change between different means) alongside with an extensive (discrete) use of signing space.

[2] It was decided not to ask the information follower to draw the route as well. As eye contact is required for sign language interaction, it was found that this would have caused too much disturbance during the conversation.

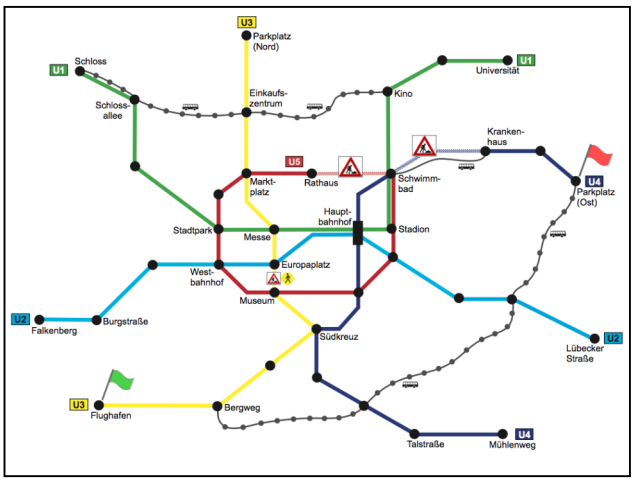

Figure 2: Transportation map (German material for informants A and B)

3.2 Description of Places and Activities

For the following tasks pictures[3] are provided to evoke language use in a less restricted way than in the tasks previously described. At the same time a high percentage of vocabulary comparable across the different languages can be expected.

3.2.1 Travel Agency

The imagined setting for this task is a travel agency. The role of the one informant is that of a staff member at the travel agency, while the other takes over the role of a customer who wishes to go on holiday but does not know yet where to go to. The first informant is asked to suggest two different destinations to the customer by describing/advertising these places. Afterwards the second informant is asked to explain briefly which of the destinations she/he prefers and why.

The destinations to be described are predetermined by the elicitation material and vary from session to session in order to cover a wider range of vocabulary. For each session this is one capital city (Paris, London, Athens or Berlin) and a more general place (either "at the beach" or "in the mountains"). For each destination a range of pictures are shown to the informant meant to provide ideas of what to talk about. Included are well-known tourist places, other places of interest (e.g. museums), certain characteristics of this place (e.g. different styles of houses/living), places specifically of interest to Deaf people (e.g. Deaf Theatre), leisure activities, etc. The pictures of a certain destination are presented one after the other (each shown for 2 sec), which prevents the informant from concentrating on each detail of a picture. At the end of the presentation a collage of the pictures is shown which remains displayed throughout the task.

The selection of pictures included in the material as well as the destinations varying from session to session ensure that a wide range of domain specific vocabulary is covered.

Figure 3: Travel Agency: Paris (material for all languages)

3.2.2 At the Airport

The topic of this task is the situation at an airport and the procedures taking place when travelling by plane. The informant is asked to describe the situation as if the other informant has never travelled by plane before. Pictures displaying different aspects as checking in, security issues, boarding, baggage claim and passport control are shown to the informant in chronological order and displayed as a collage at the end. Again the pictures are not to be described in detail but meant to provide ideas of what to talk about.

Mainly monologue data is expected from this task, but the design of the task also allows for involvement of the second person adding to the other person's description.

Figure 4: At the airport (German material)

[3] Pictures used for this and all collages in other tasks were published under Creative Commons licenses (URLs available upon request).

3.3 Discussion and Negotiation

The following section deals with collaborative tasks. Taking the risk of receiving utterances that are less comparable than those of other tasks (not only across languages but also for the individual informants), these tasks are aiming at language data coming closer to a natural interaction.

3.3.1 Planning a Holiday

In this task the informants are instructed to plan a holiday together. They are asked to negotiate the destination, the time period for the holiday and the means of transport. They should also take into account further aspects relevant for their decision. As a basis of their discussion a picture card is shown to each of the informants displaying flags of several countries/regions, different means of transport, as well as a calendar where certain time periods are blocked (only the calendar is different for the two informants). Additionally certain aspects are shown that should also be taken into account (weather, temperature, costs).

A high amount of interaction is expected from this task, also providing domain-specific vocabulary that is not covered by the other tasks (especially dates, time periods, etc.).

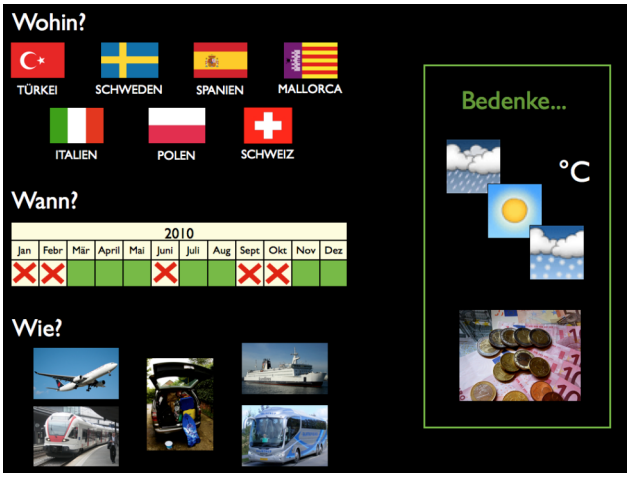

Figure 5: Planning a holiday (German material for informant A)

3.3.2 Travel Then & Now

The informants are asked to discuss how travelling has changed over time. The task is not restricted to a specific content, however pictures are presented to both informants in order to provide ideas. They show different aspects, e.g. means of transport and distances, passport control, money, up to booking on the internet and low-cost airlines. The presentation of the stimuli is similar to the one described above (see 3.2).

Depending on the individual informants the stimuli might lead to a different degree of interaction. The aim is to provoke a discussion between the informants, possibly enhanced by a narration of personal experiences.[4]

Figure 6: Travel then & now (German material)

3.4 Narration

The tasks described in this chapter are narrative tasks with varying degree of content predetermination. Whilst for *'Expectation & Reality'* the setting of the story is given but not the exact content, the other two tasks ask for renarration of a given story.

3.4.1 Expectation & Reality

The informants are asked to tell short stories based on picture cards showing two opposed occurrences of a certain situation (somebody's expectations and the actual situation). The following situations are included in the task (three picture cards for each informant plus one example):

- Skiing holiday / no snow (example)
- Comfortable hotel room / tiny room with small bed
- Summer holiday / flight cancelled
- Visit to a nice museum/ overcrowded museum
- Plenty of food in a restaurant / plate with little food
- Garden party with BBQ / bad weather
- Sunset at the beach / traffic jam, arriving in the dark

The informants are free to tell a true story (where something similar has happened to themselves) or make one up. An example is given during the task explanation in order to show what kind of story they are asked for (i.e. first-person narration, adding information and developing a story line, length of the story). While the content of the elicited stories is less predictable, this tasks aims at as high a naturalness of the data as possible, meanwhile providing vocabulary related to the target domain.

[4] The moderator is asked to encourage the informants if needed.

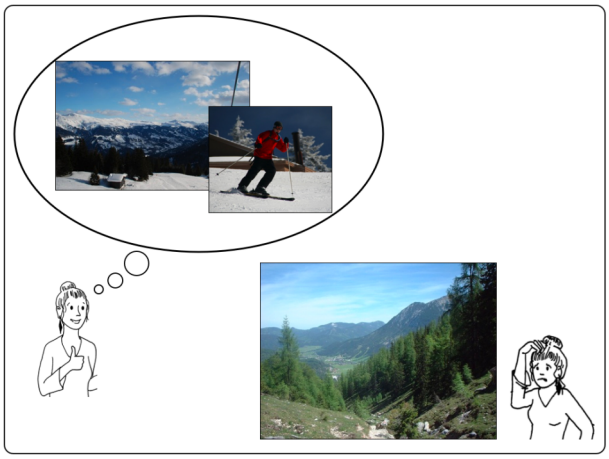

Figure 7: Expectation and reality (example for all languages)

3.4.2 Picture Story

A picture story by Quino (Lavado 1991) is used for this task, in which a woman explains to a tourist how to get to a certain restaurant (including walking, taking a taxi and a plane). One of the informants is asked to look at the story picture by picture and tell it to the other informant afterwards.

As the content of the story is given, the task is expected to provoke monologue data relatively similar by content for all target sign languages.

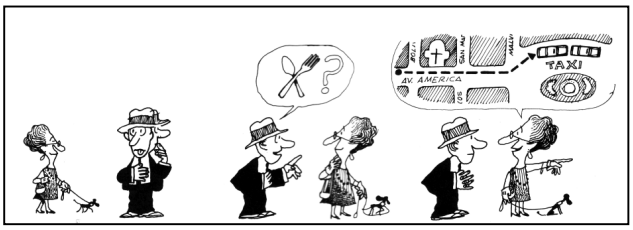

Figure 8: Beginning of the picture story by Quino

3.4.3 Retelling of a Signed Story

The informant being the recipient in the previous task is now asked to watch a video clip of a signed story and renarrate it afterwards. The fictive story is told by a Deaf person and deals with what happened during his last holiday: His travel group arrived late at the hotel, and after a drink at the bar he went straight to bed and slept all night. The next morning the others tell him that the fire alarm went off during the night and how they tried to wake him up (clip length approx. 2min).

The story has originally been produced in DGS alongside with a written English translation and was then translated in each of the other target sign languages. Due to the given content of the story and the sign language input the elicited data is expected to be comparable across the individual informants as well as the different target languages. A high amount of sign language characteristic features (e.g. Constructed Action, nonmanuals) can be expected from this task.

3.5 Denomination

In addition to the other tasks it was decided to elicit a number of signs in isolation in order to ensure that the corpus will contain certain vocabulary relevant to the target domain. Phrases however are not included in the elicitation due to the risk of major influence from spoken language.

3.5.1 Isolated Signs

Single pictures and, where needed for clarification, written words are used as stimuli. The informants are asked in turns to give isolated signs for the concepts shown. They are also encouraged to add to the other person's answers whenever they know a different sign for a certain concept.

The task covers the following areas: dates (days of the week, months and numbers), vehicles, countries of the EU, weather conditions.

3.6 Task Explanations for the Informants

A Deaf moderator is present during the whole elicitation session ensuring a smooth procedure, providing support for the informants and being responsible for the time management.[5] However, consistently explaining the tasks to the informants is a complex issue that cannot easily be done offhand during the elicitation. The phrasing needs to be planned carefully and Deaf culture-specific aspects regarding the text structure need to be considered. It was therefore decided to film all the explanations beforehand and show these clips to the informants prior to each task. This still leaves a lot of responsibility to the moderator leading the elicitation but ensures that no information is left out and that each informant gets exactly the same explanation (especially across different languages and with varying moderators).

3.7 Procedure for the Elicitation Sessions

The tasks described above are to be arranged in a way assuring a balance with respect to the activity of both informants in a session. Switching roles between the topics was arranged as shown in the timetable below. The estimated duration for each task given in the timetable includes the task explanations given to the informants (aiming at a total session length of about two hours).

Each session starts with a *warm-up task*, where the informants are introduced to the domain of the elicitation and are led into a short conversation about their own travel habits. A short *break* is planned for between tasks 5 and 6, and the session is concluded with a slot for the informants' feedback. Additionally an *extra task* has been planned for in case the estimated time for a session is not fully used. For this task, no material is shown but the informants are asked to tell a personal travel experience (e.g. their best or worst holiday ever).

[5] For the moderator's role see Hanke et al.: DGS Corpus & Dicta-Sign: The Hamburg studio setup, this volume.

No.	Task	Informant A	Informant B	Estimated dur. (min)
0	*Warm up*	*conversation*		5
1	Public trans-portation	explanation	explanation	10
2	Travel agency	description	*(short answer)*	11
3	Planning a holiday	negotiation		7
4	At the airport	-	description	5
5	City Map	explanation	*(follows)*	9
	Break			5
6	Expectation & reality	narration	narration	12
7	Travel then & now	discussion		11
8	Retell a story	narration *(signed story)*	narration *(picture story)*	10
9	Isolated signs	denomination	denomination	12
10	*Extra task:* Pers. experience	narration	narration	10
11	*Feedback*	*comment*	*comment*	6

Table 1: Procedure for elicitation sessions

3.8 Material Adaptations

In planning parallelised corpora of different languages, also cultural differences as well as language-dependent issues have to be taken into account. The material was therefore designed in a way that only adjustments are needed that are easy to realise and do not change the character of a tasks.[6]

Obviously adjustments are needed for tasks that include written language. Mostly the words can easily be translated; a version of the materials just including the drawings and pictures can be used for the adaptation, where only the words have to be added. The only exception is the *'Public transportation'* task: While most of the stations are named after locations (e.g. town hall or hospital), some are typical street names that can not be translated directly (e.g. Kings Road, Green Lane) but were chosen to elicit utterances that include signs as "road" or "place". Additionally for the *'City map'* material icons are used alongside with the written words for an easy comprehension. These need to be changed according to the usage in each country (e.g. pharmacy).

Several tasks rely on pictures as stimuli that can mostly be used across the different target languages. Some pictures however are country or language specific and need to be replaced (e.g. passport, train ticket, typical kind of hotel).[7] Additionally, the task evoking isolated signs allows for pictures to be added in case a specific sign is wished for in a certain language (e.g. French TGV with a characteristic shape).

While the picture story is suitable for all of the target languages, the signed story obviously has to be translated. For the Dicta-Sign corpus the story was originally produced in DGS and translated into written English and was then translated into each of the other target sign languages. The same holds for the video clips of the task explanations for the informants.

4. Conclusions

In the framework of the Dicta-Sign project corpus collection has so far been undertaken for DGS, LSF and GSL (BSL in preparation). Adapting the material as described made it possible to adopt it for all target languages, and a preliminary inspection of the language data collected seems to confirm our expectations of the tasks' results. Only the transcription process now starting will allow us to analyse in detail how far our goals of "parallel" corpora have been achieved.

The length of the individual tasks as well as per session in total is roughly as it was expected, resulting in an average signing time per session (i.e. both informants, task explanations not included) for the three languages between 1:05h and 1:19h.

Feedback received from the informants so far showed that the individual tasks as well as the session as a whole were found to be interesting and appealing. For some of the tasks (esp. *'City map'*) the prerecorded task explanations were not sufficient and the moderators often needed to give further explanations.

So even at this early stage of analysis, we are convinced that, thanks to the commitment of the moderators and the motivation of the Deaf informants, we have been able to collect a corpus valuable not only for research within the project, but also to the sign language research community at large: Corpus data will be made available together with baseline transcriptions at the end of the project.

5. Acknowledgements

The research leading to these results has received funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 231135.

6. References

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Lavado, Joaquin (1991): *Guten Appetit!* Oldenburg: Lappan.

[6] This holds for Dicta-Sign's target languages and presumably for other sign languages in Europe and beyond.

[7] Most of the changes are needed for the tasks *'At the airport'* and *'Travel then & now'*, hardly any adjustments are needed for *'Travel agency'*, none for *'Expectation & reality'*.