

# SpeechText: research on print interpreting

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## **Abstract**

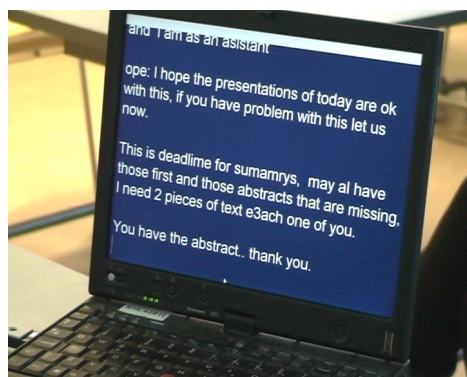
This paper presents an ongoing research project, SpeechText, in which a special means of communication, 'print interpreting', is studied. This communication mode, also called typing/writing interpreting, captioning or real-time writing, means the translation of spoken language and any accompanying significant audible information into written text simultaneously with the speech. Print interpreting is needed as a communication support for people with a hearing disability in order to give them access to speech. The project investigates the process of print interpreting and the comprehensibility of the interpretation as well as develops new technologies and methods for both print interpreters and research purposes. This paper describes the method of print interpreting used in Finland and presents the research project, its objectives and methods.

## **What is print interpreting?**

Print interpreting is the most commonly used communication support for people with a hearing disability in Finland. The clients are hard-of-hearing and late-deafened people who have lost their hearing to some extent in the adulthood but have usually maintained their ability to speak. Other communication methods include signed Finnish and lip reading by the deafened, whereas sign language is seldom an option, since most clients do not know it.

Spoken information can be conveyed by handwriting, but usually the text is typed on a computer and displayed on a screen letter by letter as it is written. The lines scroll up, and when the screen is full, the top lines disappear and the bottom of the screen is filled with new text. This means that the writing is visible for the reader as a dynamic, real-time process with its errors, corrections and temporal features (see Figure 1). The client will only see the part of the text unit that fits the screen. As soon as new text fills up the screen, the previous text disappears and cannot be

recovered since the interpretation is not usually saved. In Finland, an ordinary word processing program is commonly used in interpretation, but recently a software tool has been developed specifically for print interpreting purposes. The tool stores longer words on a database and suggests them during the writing process.



*Figure 1.* Print interpretation

Print interpreting is used in various encounters of deafened participants, for example in seminars and meetings. Recently, personal interpreting for a single hearing-impaired client has become more common. This type of interpreting may be necessary at meetings and lectures when most of the participants are hearing. These situations are particularly demanding for the interpreter, because the speakers' speech rate can be high and they are often unable to take the hearing-impaired person and the interpreter into account. Personal interpreting is also needed in various community interpreting settings such as medical, legal or service encounters. Deafened persons have, by the handicapped law, a right to an interpreter. Because print interpreting is a rather new communication method, the professionalisation of the occupation is still taking shape. The professionalisation requires developed methods, better technology, standards of the interpretation, and advanced interpreter training. In this process, there is a great need for research in Finland as well as internationally.

### **Challenges in print interpreting**

From the customers' point of view, the most important qualities of good print interpretation are simultaneity, low error rate and complete rendering of the spoken words. Simultaneity requires a high production rate which is a demanding task especially when using an ordinary word processing program. We have to take into consideration that writing, even professional typing, is always much slower than speaking. In consequence, an obvious delay usually occurs between speech and the emerging text. This delay causes errors in the production and makes it difficult for the recipient to connect the speaker's non-verbal communication (gestures etc.) with the written message.

Generally, a lay persons' notion of an ideal translation is a literal transformation between the original and the target. As Wadensjö (2002 [1993], 356) notes, common-sense understanding of interpreters' activity is that they are to render what others say, and that is all. Since the clients of print interpreters have acquired the language in a hearing speech culture, they usually want an interpretation which does not only get the message across but is as close as possible, that is, a verbatim transcription. The interpretation should also give an impression of the speaker and the linguistic variation (cf. Englund Dimitrova 2007). This principle is followed by the guidelines of print interpreting. According to them "everything shall be written, also dialects and slang" (Laurén 2006). However, our preliminary findings indicate that depending on the speech situation and the speaker, about 30 – 45 % of the spoken words are omitted. In addition, the written text includes a large amount of spelling errors, usually also gaps and even mistakes in the content (Tiittula 2006). A verbatim transcription of the speech seems to be impossible. Furthermore, the verbatim message can be difficult to read because spontaneous oral language differs distinctly from written language. Typical features of spontaneous speech are, for example, false starts, repetitions and unfinished sentences. In consequence, the text has to be condensed, and it has to be modified into a form which is easier to understand in print. An important linguistic and ethical question is how to do this.

The following example illustrates problems of print interpreting. The extract comes from an English class where the speech is captioned for one deaf student. On the left, there is the original,

and on the right, the print interpretation. The delay between those two is 5 seconds long.

Talk:

first of all, today is the deadline for summaries / so may I have those first / also and those of you who haven't given me the abstracts / please hand it in. remember I need two pieces of text / from each one of you.

Print interpretation:

This is deadline for summaries, may all have those first and those abstracts that are missing. I need 2 pieces of text each one of you.

The example demonstrates typing errors, omissions and delay but also reformulations. The written form raises the question, how well the message can be understood.

Print interpreting means not only omitting something or compressing the message. The print interpreter also has to add information to the text such as punctuation marks indicating the speech segments. In addition, they have to convey the meaning of relevant prosodic features such as emphasis or intonation marking irony, as well as non-language sounds from the surroundings (e.g. laughter, applause), speaker identification etc. In short, all relevant audible information needs to be interpreted into a visible, readable form.

To conclude, there is an urgent need for research on the interpreting process, the possibilities of the interpreting when the multimodal communication is reduced to writing, as well as on the comprehensibility of the product. Among the few studies on print interpreting, Birgitta Englund Dimitrova's interview study (2007) can be mentioned. In this study, she examined how Swedish print interpreters perceive quality.

### **Research project SpeechText: objectives**

The research project SpeechText is an interdisciplinary project studying print interpreting. The project investigates the process of print interpreting and the comprehensibility of the interpretation, and develops new technologies and methods for analysing and supporting print

interpreting. The first objective, process, has two meanings. In a narrow sense, the process means the real-time conversion act of the speech into a written mode. In other words, what the interpreters do when they transfer the audible spoken message into the visible format and how the content and the form of the message are changing. In a broader sense it covers the whole communicative event, including the activity of interpreting and the actions of the participants and their interaction. This broader view takes into account the fundamental duality of interpreting: it is not a mere text-production activity but also a service to enable communication. Accordingly, it is important to study how the communication functions, what the role of print interpreting is, and how the interaction between deafened and hearing persons is conducted.

The second objective, comprehensibility of the interpretation, is examined in terms of readability and coherence. Now, the focus moves on to the visual text and the addressee who has to rely on the visible mode alone. The demands on the interpretation and the written text are usability, accuracy, appropriateness, readability, and understandability. We ask: Is the target text “reliable”? How well does it convey the meaning and the intention of the source text?

Unlike usual written texts, print interpreted text is dynamic, and it is embedded and read in the multimodal communication situation. However, the addressee’s possibilities to follow the visual elements, for example the non-verbal behaviour of the speaker, depend on the situation and the interpretation mode. When spoken language is rendered into the written mode, typical features of spontaneous speech – or their absence – may impede the comprehensibility of the text. Such features are, for example, deictic elements, deviations from grammatical standards, and lack of cohesion in the absence of prosody. An important question is how a coherent unit can be constructed of the transferred message (cf. for example Sanders & Spooren 2001): What affects the coherence of the target text and which elements will make it coherent/incoherent? How do written speech-specific features affect the reception of the written text? And further: What is the influence of errors, corrections and writing / not writing nonverbal elements on reading and understanding the text? Is it possible to understand the message by only following the target text? A further central question is how the emerging text is read.

In the SpeechText project, the print interpreting is examined from various intertwined perspectives (cf. Shlesinger 1997). The intertextual perspective relates the written text, the

interpreted output, to the spoken source text, i.e., the speech and other audible information. This means an analysis of the relation between the two communication modes. The intratextual perspective focuses on the output and the presentation including the visible writing process. Finally, from the perspective of the participants, the communication is examined as an interaction between deafened and hearing persons with interpreter acting as a mediator.

The practical aim of the study is to develop new software solutions to improve the accessibility of communication. The results of the studies on the reading process can provide valuable information to develop better ways of rendering the text in order to improve its comprehensibility. In addition, the project will contribute to a deeper understanding of the relationship between writing and speaking, verbal and non-verbal communication, and it will produce new information about their interchangeability in various media.

## **Materials and methods**

The research questions are studied in the interdisciplinary collaboration by combining approaches from linguistics, translation studies (especially interpreting studies), computer science, and sociology. The main research methods are textual analysis of the interpretation, multimodal analysis of the process, conversation analysis of the interaction, and eye movement analysis of the reading process (cf. Špakov & Rähä 2008). In addition, interpreters as well as hearing impaired clients are interviewed. Data is also collected by observing various situations where print interpreting is used.

The analysis is based on authentic research material from real communication situations such as lectures, club meetings, seminars, and foreign language classes. The data include video and audio recordings, transcriptions of the speeches, and the static written end products. For the analysis of the reading process, experimental data are collected in the eye-tracking laboratory. Additionally, ethnographic data from interviews and observations are needed for better understanding of the profession and its requirements.

## Research team

The study is carried out by an interdisciplinary consortium consisting of two research teams at the University of Tampere: one under the Translations Studies led by Professor Liisa Tiittula, and the other in the Department of Computer Sciences, responsible leader being Professor Kari-Jouko Rähkä who is also the leader of the TAUCHI unit (Tampere Unit for Computer-Human Interaction). The research team in Translation Studies has following focuses: Anukaisa Alanen investigates print interpreting in a foreign language learning context, especially in English class settings; Maija Tanhuamäki examines the quality of the interpretation focusing on the accuracy and comprehensibility, and Riitta Virkkunen studies the role of the multimodal context and the relations between talk and text in the audiovisual translation process. The research team in Human-Computer Interaction employs two researches: Oleg Špakov is an expert in visualisations of eye movement data and tools for developing gaze-aware applications. He is responsible for the technology development. Selina Sharmin studies reading and visual perception processes in experimental settings.

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## References

Englund Dimitrova, B. 2007. Interpreting for deafened adults: interpreter perceptions of quality.

- In: Critical Link 5, Sidney April 2007.
- Laurén, S. 2006. Kielen sisäinen tulkkaus. [Intralingual interpreting]. In Hytönen, E. and Rissanen, T. (eds), *Käden käännteessä. Viittomakielen kääntämisen ja tulkkauksen teoriaa*. Helsinki: Finn-Lectura, 199-225.
- Sanders, T. & Spooren, W. 2001. Text representation as an interface between language and its users. In Sanders, T., Schilperoord, J. & Spooren, W. (eds), *Text Representation. Linguistic and psycholinguistic aspects*. Philadelphia, PA: Benjamins, 1-25.
- Shlesinger, M. 1997. Quality in simultaneous interpreting. In Gambier, Y, Gile, D. & Taylor, C. (eds), *Conference Interpreting: Current trends in Research*. Amsterdam: Benjamins, 123-131.
- Špakov, O. & Rähä, K.-J. 2008. KiEV: A tool for visualization of reading and writing processes in translation of text. In Proceedings of Eye Tracking Research and Applications Symposium (ETRA 2008), Savannah, Georgia, March 2008., 107-110.
- Tiittula, L. 2006. Schriftdolmetschen – Mündlichkeit im schriftlichen Gewand. In *A Man of Measure*. Festschrift in Honour of Fred Karlsson. A special supplement to SKY Journal of Linguistics, vol 19, 481-488.
- Wadensjö, C. 2002 [1993]. The double role of dialogue interpreter. In Pöchhacker, F. & Shlesinger, M. (eds), *The Interpreter Studies Reader*. London: Routledge, 355-370.