Using SignWriting as a Phonetic Notation System

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Résumé Cet article décrit une expérience d'utilisation du système SignWriting comme une notation phonétique pour ce type de langue. On a utilisé le système SignWriting pour faire la transcription phonétique d'une vidéo portant une conversation en Langue de Signes Française (LSF). La transcription a été faite au niveau phonétique, et non pas aux niveaux phonologique ou lexical. Le fait que les paramètres phonétiques des langues de signes ont un caractère universel a permis que la transcription soit faite sans que les transcripteurs connaissent la LSF. L'article présente initialement une brève description du système SignWriting. Après, il introduit les principaux paramètres phonétiques qui ont été utilisés dans la transcription. Finalement, il présente et décrit les transcriptions de quelques signes du dialogue.

Abstract This paper describes an experiment in the use of the sign language notation system, called SignWriting, as a phonetic notation system for that kind of language. We have used the SignWriting system for the phonetic transcription of a video containing a conversation in French Sign Language (LSF). The fact that the phonetic parameters have a universal character allowed the transcription without the transcribers knowing LSF. The paper presents initially a brief description of the SignWriting system. Then it introduces the main phonetic parameters that were used in the transcription. Finally, it presents and describes the transcriptions of some of the signs of the dialogue.

1   Introduction

Transcribing sign language vídeos into a notation system is a technical activity, that requires training and ability. A part from the visual accuracy needed to grasp the details of gestures, a precise understanding of the semantics of the notation system is also necessary. Whenever the notation system uses specially created symbols, with contrived semantics derived from an underlying linguistic account of the sign languages, theoretical understanding of that linguistic account is also often necessary. This paper aims to show that the SignWriting system (Sutton, 2005) can be put into use as a phonetic notation system that requires almost

no linguistic theoretical background from the transcribers, since the visual characteristics of the system immediately give them the phonetic intuition behing the symbols of the system. We do that by showing the transcription of the FSL dialogue contained in the video **CE1.mov** that belongs to the sample corpus offered to the participants of the TALS 2005 workshop. To emphasize the almost blind condition in which the transcription work was done, we note that the transcribers based their work only on their knowledge of the set of phonetic parameters they analyzed in the signs, and on their knowledge of SignWriting: they do not know LSF. Of course, this makes of the obtained transcription a very rough and preliminary result, that could be immensely improved in many ways by someone with a proper knowledge of LSF. Anyway, the idea is to show the simplicity, ease of writing and reading, and adequate faithfulness of SignWriting as a phonetic transcription system.

2 The SignWriting system

The SignWriting system (Sutton, 2005) was created as visual notation system for sign languages. It's aim is not the technical transcription of sign languages, from the point of view of their linguistic studies. On the contrary, its principal aim is allowing the daily writing of sign languages, so that Deaf people can write texts in sign languages in the same way that hearing people can write texts in oral languages. The SignWriting system was inspired by a choreographic notation system called DanceWriting, and both are subsystems of a general movement writing system called Sutton Movement Writing (Sutton, 2005). The original choreographic foundation of the system was enriched with linguistic information (mainly phonetic information) indispensable for a clear transcription of sign languages. The result is a notation system that, although directed to the non-technical daily writing in sign languages, is able to give precise phonetic transcriptions of such languages.

3 The phonetic parameters

The SignWriting system is a set of graphical symbols for the representation of the various features that characterize the phonetic description of signs. The symbols of SignWriting belong to a larger set of symbols create for the detailed representation of general body movements, not only signs, called IMWA (International Movement Writing Alphabet) (Sutton, 2005). IMWA is organized in categories, as shown in Fig. 1. Each category is divided into groups of symbols. For instance, the category Hand includes symbol groups for representing, among others, hand configurations with the various selected features, for instance, index finger, middle finger, groups of fingers, etc., in various shapes (straight, bent, curved, etc.). Hand orientation is indicated by decorations applied to symbols, like coloring, rotations, etc. Positions of hands are expressed by reading conventions, together with symbols for contacts, etc. Hand movements are represented by a variety of arrows. Also, a rich set of symbols exist for the representation of aspects of facial expressions, including mouthing, eyebrows, eyegaze, etc.

Hand	Hand configurations
Movement	Arrows and other symbols, for the representation of movements
Face	Detailed representation of facial expressions
Head	Head movement, positions and location
Upper Body	Upper body movement, positions and location
Full Body	Limbs, limb location and full-body gestures
Space	Planes, room location and group patterns
Punctuation	Symbols for indicating prosodic features of the movements

Figure 1: Symbol categories.

4   The phonetic transcription of some signs of the dialogue

The full transcription of the dialogue in the **CE1.mov** video is available at http://gmc.ucpel.tche.br/TALS2005. Figure 2 shows a simple phonetic transcription of first sign of the dialogue.
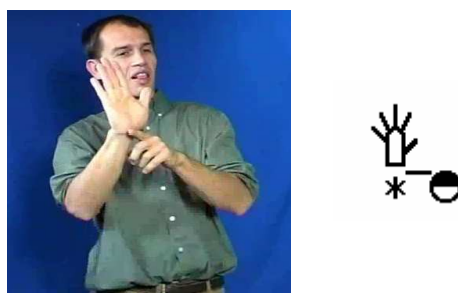

Figure 2: First sign of the dialogue in video **CE1.mov.**

The transcription focuses on the hand configurations and the touch between the finger and the hand. Closer and more careful examination of the sign would tell if the choices made in the transcription are adequate, or if they need to be trimmed. For instance, the right hand was represented as a flat hand with spread fingers. It could as well be represented as a flat hand with fingers together. Figure 3 shows two other simple phonetic transcriptions.
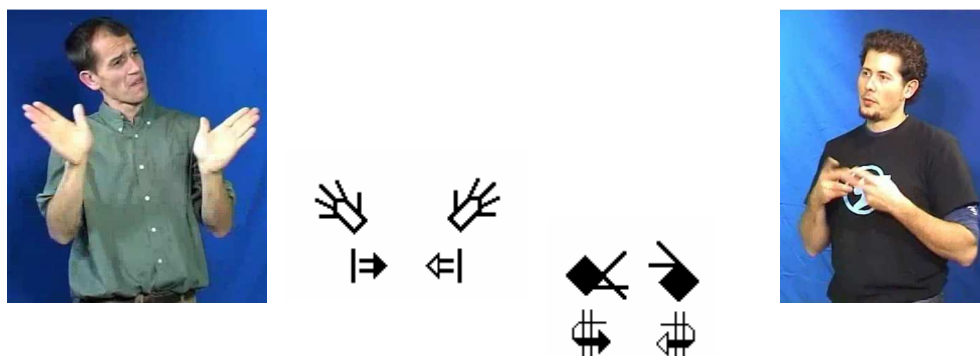

Figure 3: Simultaneous signs in the dialogue.

Again, the focus is on the hand configurations. Note the choice for representing a V and a P hand, in the sign of the second signaler. The fact that we have focused on hand configurations is due to short time available and inexperience in transcribing sign videos, that make difficult for us to grasp other features, like face expression. SignWriting can represent face expressions, and also many other sign features, like body shifting, etc. Also, we have chosen to write in the so-called "receptive" point of view, that of looking at a signer. For daily writing, it is usually preferred to write in the "expressive" point of view, that of the signer.

5   Remarks on the transcription

The full transcription is available at the site http://gmc.ucpel.tche.br/TALS2005. The fact that we don't know FSL prevents us to understand the dialogue and give a translation for it. Also, it prevents us from reaching a phonological representation of the signs in the dialogue, since we have no direct clue about phonological equivalences of different phonetic features. But the fact that the phonetic features of sign languages have a universal character helped us in producing a phonetic transcription that seems quite acceptable, as a preliminary result (that needs, of course, to be reviewed by native FSL signers). More important, the reading of the transcription is quite easy, after a short acquaintance with the SignWriting system, which makes the transcription potentially useful to an audience wider than that composed only of expert in linguistics, if it is looked as a written presentation of the dialogue, in a writing system for daily use. Due to our ignorance of FSL , a persistent difficulty during the transcription was the clear separation of signs and phrases, to allow for a neat presentation of individual signs. Such separation was not always possible, due to the many phonological and prosodic processes operating on the signs. So, we had often to arbitrarly separate complex gestures into individual parts, in order to present such gestures as sequences of individual "signs". We are sure that many of the separations that we guessed may simply be wrong.

6   Conclusion

The SignWriting system was originally proposed as a daily writing system for sign languages. The main kind of linguistic information incorporated in SignWriting is of the phonetic kind. So, the writing in SignWriting tends to be of a phonetic kind, thus its natural application to phonetic transcriptions. The simplicity of the graphical symbolism of the system, makes it quite easy to read. Moreover, its frame-based structured (organized around the so-called "sign boxes"), makes it suitable for the transcription of dialogues, as exemplified by the full dialogue transcription in http://gmc.ucpel.tche.br/TALS2005. Other video transcriptions are available on the Internet, at (Sutton, 2005). On the other hand, we want to emphasize that even if it happens that as a technical device for phonetic transcription the SignWriting system needs to be improved, its solid foundation in the idea of **movement writing** (Sutton, 2005) makes of that system a strong candidate not only for such purpose but also − and most important − for its original purpose of being a writing system for daily use.

Acknowledgments

Reference

SUTTON, V. (2005), The SignWriting System. La Jolla, California, Center for Sutton Movement Writing. Homepage: http://www.signwriting.org.