ISCH COST Action IS1006 SignGram

Work plan for STSM to Institut Jean Nicod, Paris

Sign action number: IS 1006
Title of the action: Unraveling the grammars of European sign languages: pathways to full citizenship of deaf signers and to the protection of their linguistic heritage
Action short name: SignGram COST Action

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STSM Title
Assimilation in Sign Language

The aim of the project is to study assimilation in Sign Language. The main language of the study is Italian Sign Language (LIS) but extensions will be proposed for a cross linguistic comparison between LIS and French Sign Language (LSF). The project focuses on handshape assimilation trying to disentangle issues related to the appropriate phonological domain in which assimilation is found. The data come from the part of the LIS corpus which has already been annotated (Geraci et al 2011). Specifically, the study concentrates on assimilation of underlying "1" handshape. The empirical basis of this project will serve to evaluate some theoretical predictions as stated in the Prosodic Model for sign language phonology (Brentari 1998).

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The STSM will be supervised by Dr. Carlo Geraci at the Jean Nicod Institut in Paris and will continue in Italy after the STMS will be over.

Assimilation in spoken languages

Assimilation is a common phonological process by which one sound becomes more like a proximal sound. This phenomenon can occur either within a word or between words. In rapid speech, for example, "handbag" is often pronounced [□hambag], and "hot potato" as [□h□pp□te□to□].

As these two examples show, segments typically assimilate features of the following segment (regressive or anticipatory assimilation), or they may assimilate features of the preceding one (progressive assimilation) or even from both the previous and following phonological context.

Assimilation in sign languages

Given the prominence of simultaneity (as opposed to sequentiality) in SL phonology and morphology, assimilation is mostly found across signs (i.e. between words). However, cases of assimilation and coalescence are also found inside the sign domain, as in cases of two-handed signs and compounds.

An example of anticipatory assimilation of the handshape between two independent signs is given in (1).

(1) a. IX-1(handshape-1) BASKETBALL PLAY A-LOT
b. IX-1(handshape-B) BASKETBALL PLAY A-LOT
'I play a lot of basketball'

In (1)b the handshape of the sign “I” (1) is influenced by the handshape of the sign BASKETBALL (B) which follows, so “I” is produced using B-handshape instead of 1-handshape, as in its citation form.

An example of assimilation inside the sign is given in (2)

(2) a. WEEK (L + 5 handshape)
b. WEEK (L + L)

The sign WEEK is a two-handed sign, produced in its citation form with L-handshape by the dominant hand and with the 5-handshape by the non-dominant hand,.

In (2)b the dominant hand influences the non-dominant one producing assimilation: the sign WEEK is signed using the L-handshape in both hands.

An example of assimilation inside a compound is given in (3b), while (3c) represent a case of coalescence.

(3) a. HEAD-POUND (1 + Y)
b. HEAD-POUND (L + Y)
c. HEADPOUND (“horn” & extended thumb)
'intelligent'

In (3)b the compound HEAD-POUND is produced using L+Y handshape, instead of 1+L handshape as in the citational form, to make easier the transition from the first part of the sign (L) to the following part, which is produced with Y handshape.
In (3)c a case of coalescence is shown: the sign HEADPOUND is produced by a "fusion" between the two handshapes. The result is a single sign produced using horn and extented thumb.

What has been done so far

Since my work will be based on data coming from a large corpus of LIS, I mention here two studies that investigate the process of assimilation in sign languages by using data from similar corpora.. Lucas et al. 2001 investigated variation in the use of "1" handshape on a corpus of ASL signers. This study showed that signers’ choices of a 1 handshape variant are clearly influenced by the features of the preceding and following segments. However, this influence works together with the influence of the grammatical category of the sign with the 1 handshape, as well as with a number of social factors.
Schembri and his research team (Schembri et al. 2009), studied phonological variation and change in AUSLAN and NZSL, focusing on one parameter: location, in the class of signs that includes signs like THINK, NAME, CLEVER. In their citation forms these signs are specified for a place of articulation at or near the signer's forehead, but they sometimes are produced at lower locations.

Project proposal

Main framework

My project is a contribution to one of the goals set by SignGram Cost Action, that is the compilation of grammars of sign languages of Europe. As European Cost Action states: "Making SL grammars available to signing communities, policy makers, linguists and to civil society in general will strengthen the status of SLs and support full participation of their users in society. In parallel, deepening the knowledge on SL grammars with a theoretically informed comparative approach will contribute to the characterization of the human faculty of language, whose study is severely biased towards spoken languages. In this way, empirical and theoretical results from SLs will have an impact on several domains of the current agenda of Cognitive Sciences." Besides the practical advantages for the communities of SL users and the professionals working with them, having reference grammars will also guarantee better theoretical work on specific grammars: carrying out research into a certain grammatical phenomenon often requires knowledge about other interconnected aspects of the same grammar, but this requirement remains partially unsatisfied because no comprehensive picture of the grammar not even of major European sign language is yet available.

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Data source

A corpus of LIS has been collected within a project called "Building a LIS Corpus" conducted by the University of Milan-Milano, Ca' Foscari University in Venice and La Sapienza University of Rome. Data were collected from 165 native and near-native deaf signers of LIS, across Italy. The corpus was partially coded using Elan, a software which allows us to select the sentences, transcribe the signs, as base level, and to enrich the analysis by adding a new level, dependent or independent from the sentences, in order to code, for example, facial expressions, which play a very important role in Sign Languages. By making use of some of the work that has been carried out on assimilation phenomena in sign languages and following the studies conducted for ASL, BSL and AUSLAN, I would like to investigate assimilation in LIS among the different productions within the available corpus. I will investigate the phonological phenomenon of assimilation together with Dr Carlo Geraci (Institut Jean-Nicod CNRS, Paris) who, after having worked on the interface between syntax and phonology and on epenthesis, has now developed a research interest in this phenomenon.

Research issues

I will focus on assimilation affecting signs with underlying "1" handshape. I will investigate across sign assimilation (cf. 1b) on a large data sample, while cases of two-handed sign assimilation (cf. 2b) and assimilation inside compounds (cf. 3b) will be investigated on a qualitative inspection of the corpus. In the latter two studies, several handshape will be considered. For each phenomenon the following issues are relevant:

(4) Assimilation across signs
Identification of the prosodic domain
Identification of the direction of assimilation
Identification of the features involved (partial vs. total assimilation)

(5) Assimilation in two-handed signs
Identification of diachronic and synchronic effects
Relevance of hand-dominance (H1--> H2 vs. H1 <--H2)

(6) Assimilation inside compounds
Pattern in lexicalized compounds (cf. 3) vs. non-lexicalized compounds (e.g. verb+FINISH)
Pattern in compounds as opposed to fused forms (3b vs. 3c)

Working plan

I am planning to spend two weeks at Institut Jean Nicod: the first week will be used to extract the data from the already annotated corpus and to investigate assimilation across signs by observing the various cases of assimilation and classifying the environment of occurrence. During this week I will improve my skills with the ELAN software. The second

week will be devoted to analyze the data, trying to explore various explanations for the facts.
These project will pave the way for a more systematic analysis of the phenomenon of assimilation, which will be further developed after the STSM.

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