SIGN LANGUAGE CORPORA AND THE PROBLEMS WITH ELAN AND THE ECHO ANNOTATION CONVENTIONS

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Project, ELAN, and ECHO

My Project: Cross-linguistic investigation into speaker's attitude and focus particles in sign languages → **DGS, ISL, NGT**

ELAN (Eudico Linguistic Annotator)
- adequate annotation software
- annotation by multiple tiers
- time aligned videos (torso + face)
- tool from the MPI in Nijmegen

ECHO annotation conventions
- set of abbreviations to annotate sign language video data
- based on work from ECHO - Case study 4: sign languages

The boxes:

Problems and inadequacies

Suggestions for improvement

Advantages of the suggestions for annotation and search functions

Time span annotation

Problem: How should the time span of a sign be annotated?

- syllable structure of a sign is defined by *location* and *movement*
- a sign does not always have clear boundaries
- on- and offsets of a syllable are therefore hard to determine

Should this syllable-based sign domain be the annotation domain or rather complete signs including their transition periods? ECHO does not regulate this issue and the gloss annotation is not consistent.

Suggestions: Signing is a cohesive articulation stream that has a certain prosodic structure.

- Signing should be annotated as a **continuous process** that is interrupted by holds or significant pauses.
- A **hold** for example is marked by (-h) and **pauses or clear interruptions** of the signing stream have to be indicated by a gap in the annotation line.
- The transition from one sign to the other is often clearly visible through **handshape change,** which seems to be the more adequate marker for the annotation domain.

Classifier constructions are poly-componential

Problem: Constructions that simultaneously represent nominal features within the verb are traditionally called *classifier constructions*, but researchers have recently challenged the notion *classifier* and they suggest different terms and analyses. Therefore, the annotation of these constructions is a delicate issue.

Inconsistency! ECHO: BSL data set: *'cl-'* for *classifier*, NGT data set: *'p-'* for *poly;* Auslan corpus and BTS: '*PM*' for *property marker.*

Suggestions:
- **only annotate what can be deduced from the signing**
- use cl-, rather than p- to decide for one option
- gloss a modified verb construction, but **not a paraphrase**
- if possible, gloss information in relation to object, not handshape
- a modified GIVE **cannot** mean ***give-a-flower***, the construction itself can only mean *give-a-small-thin-object*, therefore:

*p-give a flower	GIVE-cl:small thin object (*not:* GIVE-cl:F-handshape)
*p-water tree with hose	WATER-cl:thin round object (*not:* WATER-cl:hose)
*p-wolf running	RUN-cl:animal
*p-stick in hand	HOLD-cl:long round object

Advantages: Avoiding too detailed and often superfluous descriptions of what is performed. Cases where both hands represent different entities or objects (e.g. *A bird sits on a tree.*), the hands (right: RH, left: LH) can be glossed independently.

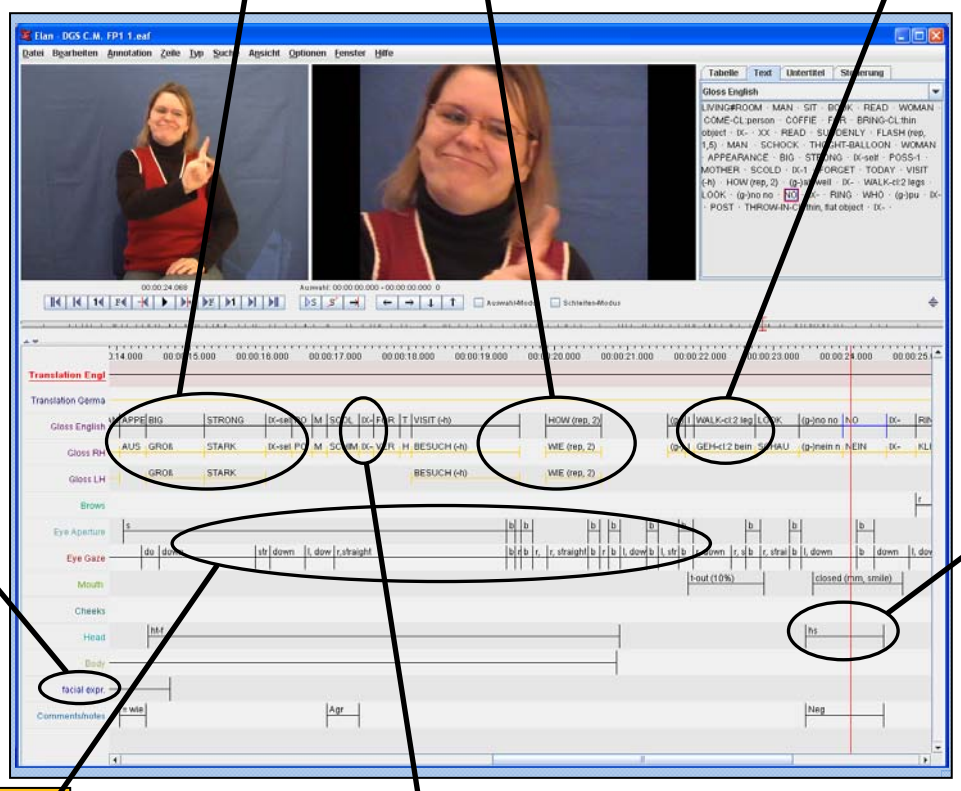
Additional tier for 'looks'

Problem: Certain relevant **facial expressions** cannot be described by entries or the sum of entries within the available tiers. How should the non-manual realization of certain attitudes, expressive meaning, information structure etc. be annotated?

Suggestions: An **additional tier** is useful. It leaves space for expressions that are difficult to describe but are nevertheless relevant (at least for studies focusing on non-manuals).

- ***'looks'*** or ***'facial expressions'***

Advantages: Especially when working in the area of semantics and pragmatics as well as prosodic phenomena, it seems necessary to have a separate tier, where **non-manual adverbials, specific facial expressions, looks,** and **contoured** or **tense signing** can be annotated.



Some additional remarks

Problem: Identical abbreviations for two different expressions.

In the ECHO conventions **'s'** stands
- for *(head) shake* in the head tier
- for *squint* in the eye aperture tier
- for *towards the signer* in direction tier

Suggestions:
This inadequacy can be avoided by adding an 'h' to the abbreviations in the head tier and redefine the directions, if needed.
- **'hs'** for *head shake*
- **'hn'** for *head nod*
- **'ht'** for *head tilt*

Further optional specifications like
'ht-f' for *head tilt forward*
'ht-b' for a *backward head tilt*
'ht-l or **-r'** for *left or right head tilts*
do not influence the searching process.
On the long run they should be included in the conventions as well, as the distinctions can be relevant.

(Same with *'p'*, see abbreviation list)

Eye gaze and eye aperture annotation

Problem:
Inconsistent annotation of eye gaze and eye aperture tier.

ECHO gives no suggestions and the annotation varies.

Suggestions:
The eye gaze tier should not exhibit any breaks except for eye blinks (b) or closed eyes (c). The signer definitely has to look somewhere, whether it is linguistically significant or not. On the other hand, it is not possible to look in a certain direction if signers blink or close their eyes. Therefore, both tiers have to be linked.

- Accurate and complementary annotation of eye gaze tier and eye aperture tier.
- No gaps or inaccuracies should occur in the annotation of eye gaze
- Blinks are supposed to be annotated in the eye aperture tier, but they can easily be inserted into the gaze tier by copy and paste. This also avoids a gaze annotation that co-occurs with a blink in the eye aperture tier.

Advantages:
Continuous annotation of the eye gaze tier including blinks can help to analyze functions of gaze for agreement or role shift and is also useful to determine eye gaze change in relation to blinks. This can especially be relevant for prosodic analysis.

Pointing signs

Problem: How should pointing (signs) be annotated? Many opposing analyses have not yet found an independent consensus.

Suggestions: I use the widely accepted abbreviation IX (ECHO uses IND) for index and suggest very few specifications:

IX-1	for the index finger pointing to the signer's chest
IX-dual (incl.)	pointing by the use of two extended fingers, if the signer is included
IX-dual (excl.)	pointing by the use of two extended fingers, if the signer is excluded
IX-(thumb)	pointing performed by extended thumb
IX-	for any other pointing by the index-finger

It is up to the annotator and the theoretical framework whether or not to add more information that can be attached to *IX*. Clear cases of locative pointing could be indicated by the letter *a*. By *IX-2* many researchers mark the pointing towards the addressee and *IX-pl* could stand for a curved pointing, indicating a certain movement of the index-finger rather than pointing to just one location.

Advantages: This differentiation would facilitate scouring the corpus for specific indexicals. Researchers can leave out the thumb-based examples if needed, find out whether the signer points with more than one finger, etc. The indexicals can still be reanalyzed or interpreted differently, but the handling especially with respect to the search tool is much easier.

Outlook and further questions

A uniform annotation system as well as lexical database is essential for various reasons:
- for comparative analysis and data exchange, especially when investigating different sign languages
- a simplified handling of annotations and search tool functions
- supporting future research with regard to machine translation and avatar usage

How to mark different signs for one word if no lexical database is available? → **DOG1, DOG2**
(following the Auslan database: never annotate the same sign by two words or two different signs by one word!)
How should compounds, collocations and loan compounds be annotated and distinguished?
(Hyphens are used if the gloss has more words) → **COMPOUND, POST+MAN, LIVING#ROOM.**
How to annotate gestures? → (g-)form of gesture or **(g-)semantic interpretation** ?

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