

# Assisting Sign Language Translation: What interface given the lack of written form and spatial grammar ?

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# Introduction

- CRPD, 2008: right to full access to information and communications
  - Growing needs for translated **Sign Language** content
  - Few professional translators
- AFILS: 144 **SL** interpreters,  
1 **SL** translator.



# SL Translation

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- Visual and manual language with no written form
- Non linear, meaning is conveyed by hands and body gestures, facial expressions and eye gaze

*The State of Sao Paulo experienced a second wave of organized crime, with attacks against the police resulting in 52 deaths including 35 police officers in two days, and the multiplication of mutinies in prisons, as reported on Sunday by official sources.*

# SL Translation

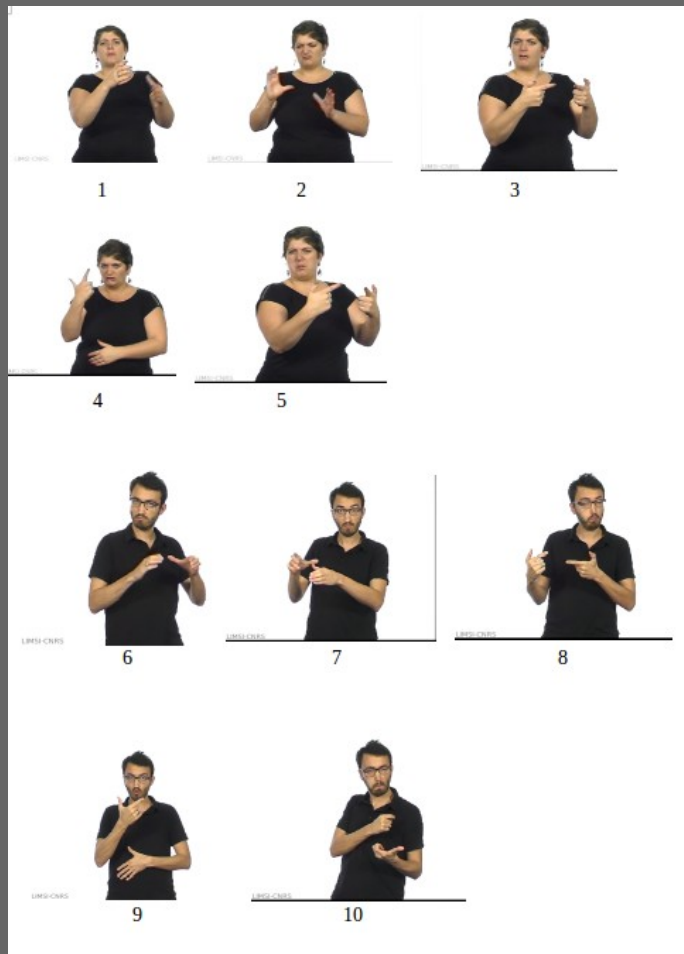
2/2

- Iconicity

- Constraint by reality

- Heavy use of 3D signing space to create persistent spatial references

- Re-ordering of the source information to set-up context



# State of the art

For **CAT**:

- Translation Environment Tools (TenT)
- Translation Memory
- Benefits

For **SL**:

- Machine Translation (not efficient enough yet)
- Avatars technology
- Nothing about **CAT**

# Observations

CAT software relies on three things:

- An editable written form:

Either for the source text, the translation content, or the aid provided by the various tools

- Translation Memory:

Stores prior work in order to reuse it later, and share it.

Text-to-text alignments are produced along with the translation, easily stored and queried.

- The principle of linearity:

The concatenation of the translated segments corresponds to the translation of the concatenated source segments.

# Limits

CAT software relies on three things:

- An editable written form  
...Which SL does not have.
- Translation Memory  
...With SL, what do we store ? Video queries ?
- *The principle of linearity*  
...Which is not assumed is SL.

SL also calls for more encyclopedic content, not provided by current software.

# Interface

TEXTE SOURCE

Lorem ipsum dolor sit amet, consectetur elit.  
Sed orci massa, interdum quis.

Nullam eros libero, laoreet ac interdum in, aliquet  
ut dui. Mauris orci diam, condimentum quis mi id.  
Sed arcu nulla, imperdiet non elit sed, aliquet dui.

Integer id orci leo. Vivamus rutrum maximus justo.  
Curibatur eu purus quis nisi rhoncus congue non  
faucibus mauris. Nam tincidunt dictum dolor, ac  
placemat risus dapibus ut. Nulla pellentesque nisi  
lectus, vel aliquet libero malesuada feugiat.

1

1a

1a'

1a''

1a'''

2

2a

2a'

2a''

2b



# Translation Memory

Concordancer to work as a **TM**:

- Stores and shares examples in context
- First database for the prototype, then to be augmented by the users
- Filters to refine the searches: aligners, signers, topic, duration...

Queried word – Video 1 - Date

“This an example of sentence in which the **queried word** is found”



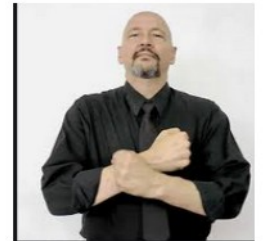
Queried word – Video 2 - Date

“This an example of sentence in which the **queried word** is found”



Queried word – Video 3 - Date

“This an example of sentence in which the **queried word** is found”

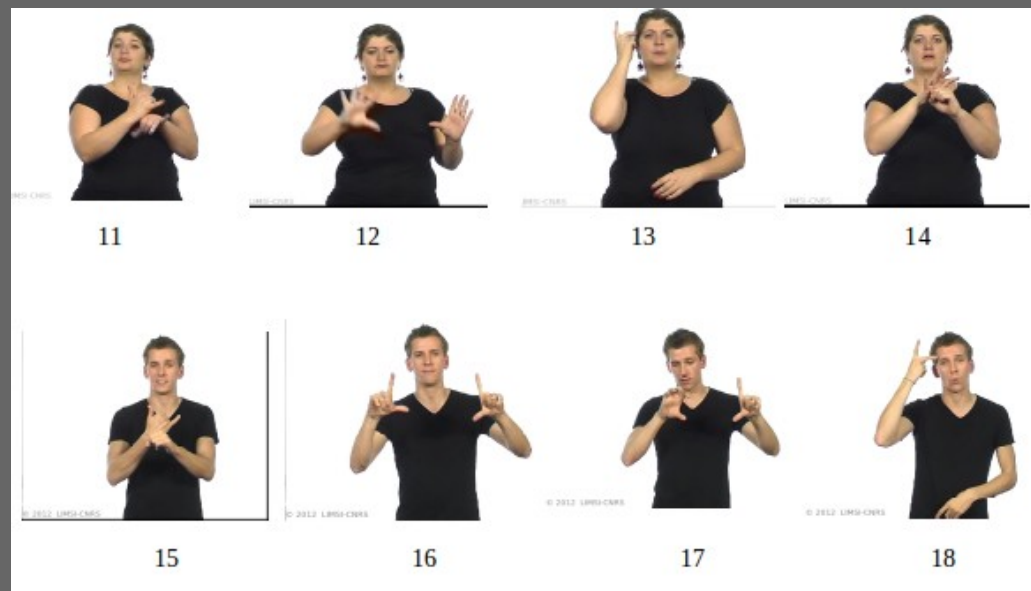


# Encyclopedic content

As SL are constrained by “reality”:

- Map and picture search
- General knowledge for context
- Encyclopedic look-up for better quality translations

Already existing online resources for each need cited above:  
automatize the searches and aggregate the results



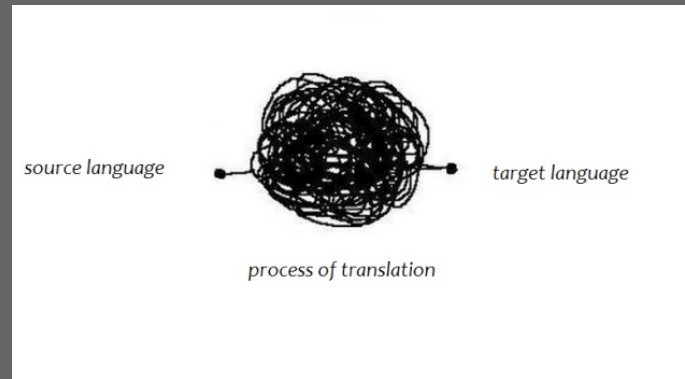
# Prototype and evaluation

## How to evaluate the prototype ?

- Available online, tested by professional translators
- Time measurements: amount of time spent on a translation with vs without the prototype
- Trust score: does they feel more confident about their production using the prototype ?
- Consistency: either between the multiple translations of a same translator, or in a group of translators.

# Coming soon...

- Iterative process with the users to converge on the most adequate features
- Data gathering to extend our alignments corpus
- Global interface prototyping and testing



Thank you for your attention !

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