vgtc.
VLAAMS GEBARENTAAL CENTRUM

Data and other challenges

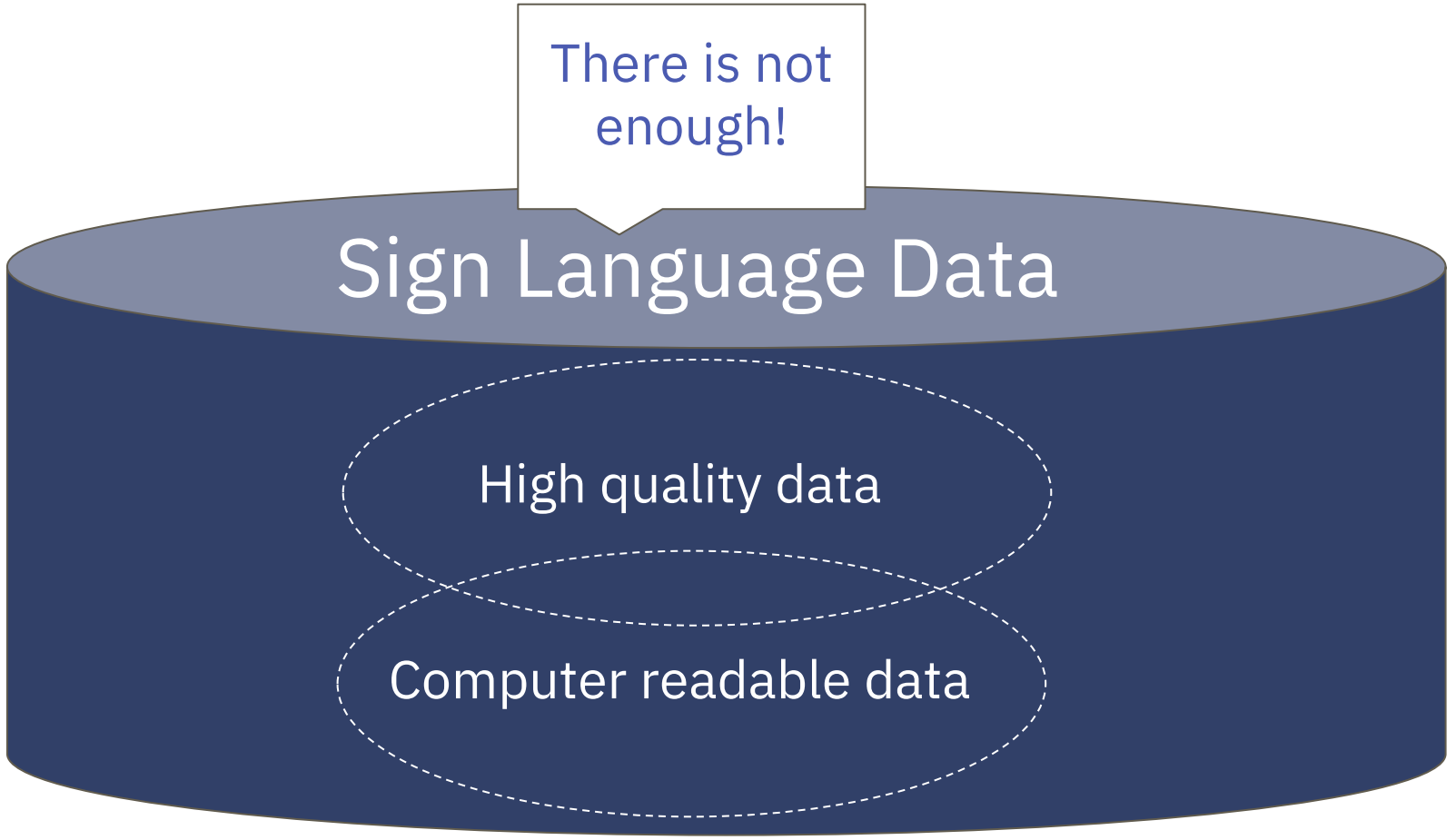
November 29, 2023

Introduction

- The data bottleneck
- Collecting data
  - Perspective gap (expectations management)
  - “Native signer” (metadata)
- Processing data
  - Manual labor + suboptimal tools/software
- Conclusions

Caro Brosens
linguistic researcher

Sign Language Data Bottleneck



vgtc.
VLAAMS
GEBARENTAAL
CENTRUM

Collecting Sign Language Data

What data to use?

The ideal sign language data...

...is representative of the whole community

- gender,
- age,
- regional variation,
- registers,
- additional disabilities,

... features highly proficient signers

...meets all requirements for all research domains (linguistics, deaf studies, NLP, computer sciences, ...)

- amount of cameras + angles,
- amount of signers on screen,
- topics covered,
- types/detail of annotations,
- eye tracking
- motion capture
- ...

Perspective gap

Deaf people & signers

= high quality data

! there is not enough

Computer scientists & MT experts

= big quantity of data

! just not always available

! big variation in sign proficiency

The myth of the Native Signer

Native speaker: language of the home, community and formal education.

Native signer (Miller et al, 2015; Hauser et al, 2018)

- prelingual deafness / deaf from birth
- loss over 85db in the better ear
- sign language is the preferred/main form of communication
- exposure to sign language since birth through deaf signing parents
- be educated in (some form of) sign in special education

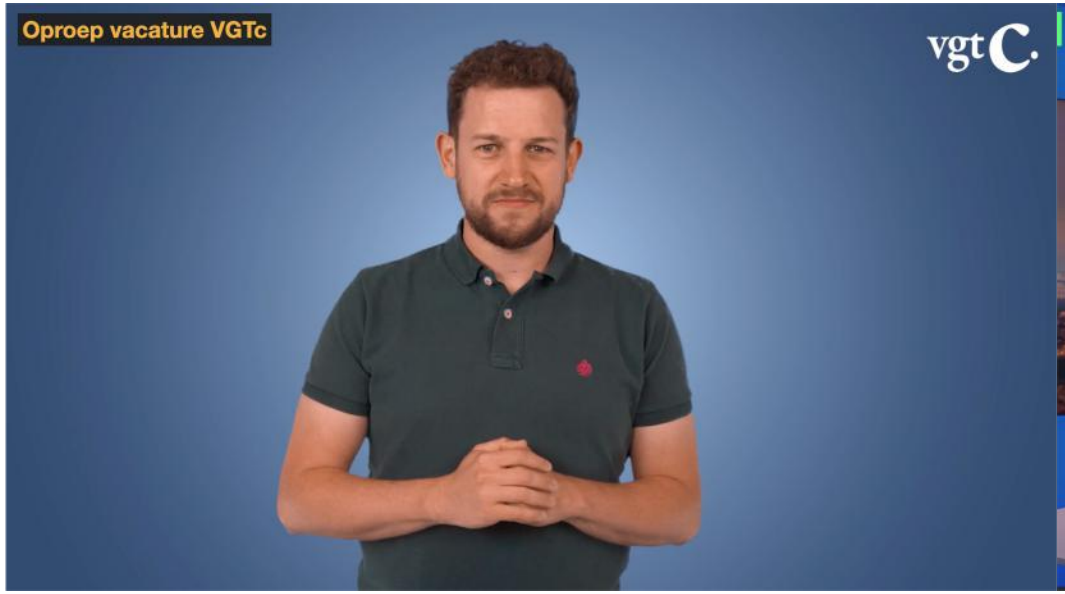
Metadata – signer

- **Auditory status:** deaf, hard-of-hearing, hearing
- **Age of occurrence:** from birth/pre-lingually, as a child, as an adult, …
- **Primary/preferred language**
- **Educational background:** special education, regular education, …
- **Age of SL acquisition:** < 3, as a child, as an adult, …
- **Familial background:** deaf/hearing, (non)signers, …

Metadata – general context

- **Type of video:** social media post, call, research report, …
- **Type of language:** spontaneous, interpretation/translation, prompted, …
- **Register:** formal, informal, vulgar, …
- **Source language**
- **Target language**
- **Available parallel data:** none, subtitles, voice interpretation, translation
- **Target audience (of the message):** signers, hearing individuals, students, …

Example



Vacancy VGTC

Interpreted newscast

Whose data is it?

- (temporary) collaborations within the community
- flexible and ever-changing roles
- natural evolution of the community

Who should collect data?

The collector should:

- be familiar with the language community
- know the language themselves
- have (or be able to win) the trust of the community members

vgtc.
VLAAMS
GEBARENTAAL
CENTRUM

Processing Sign Language Data

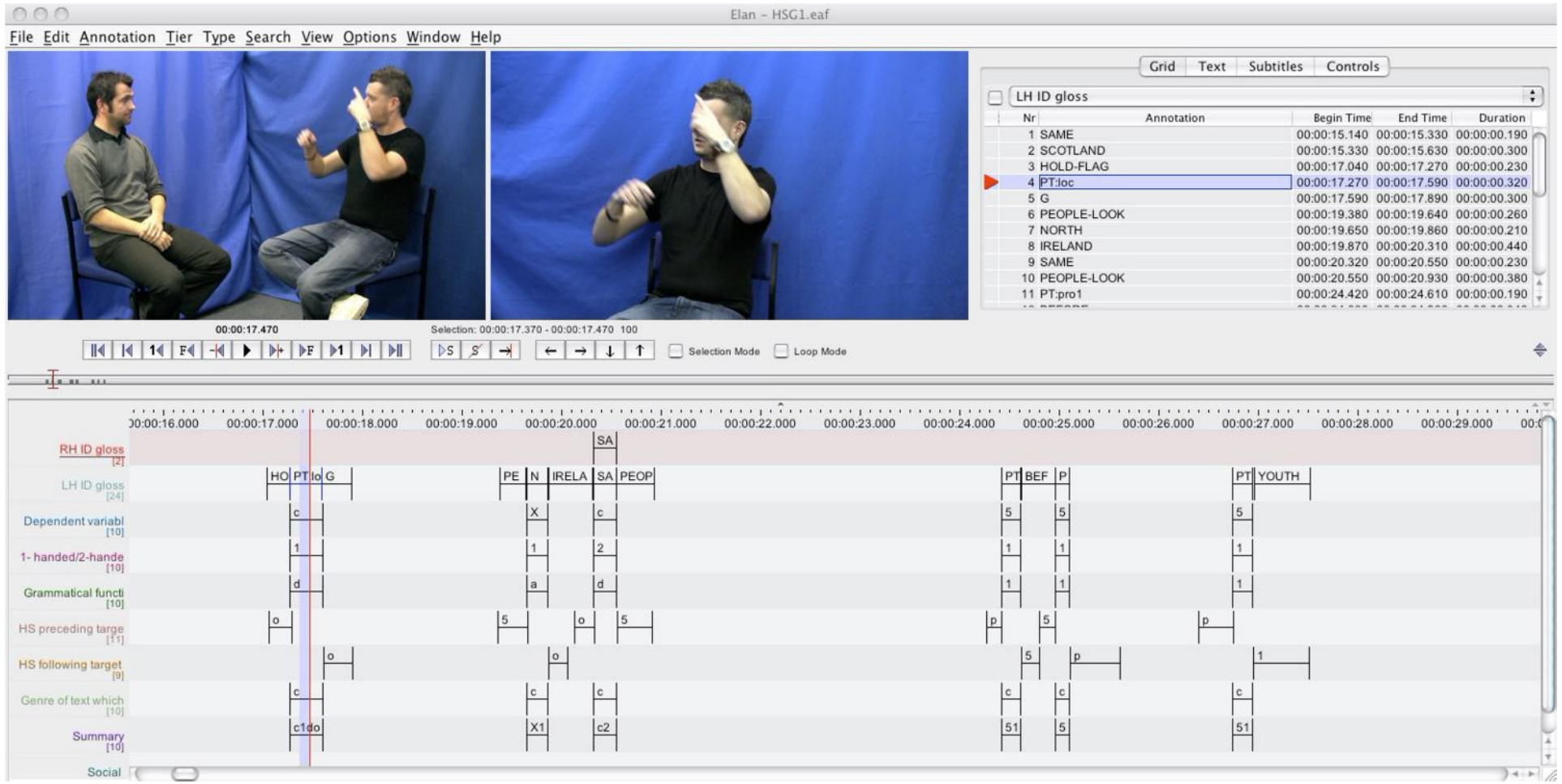
Sign Language Data

= not machine readable

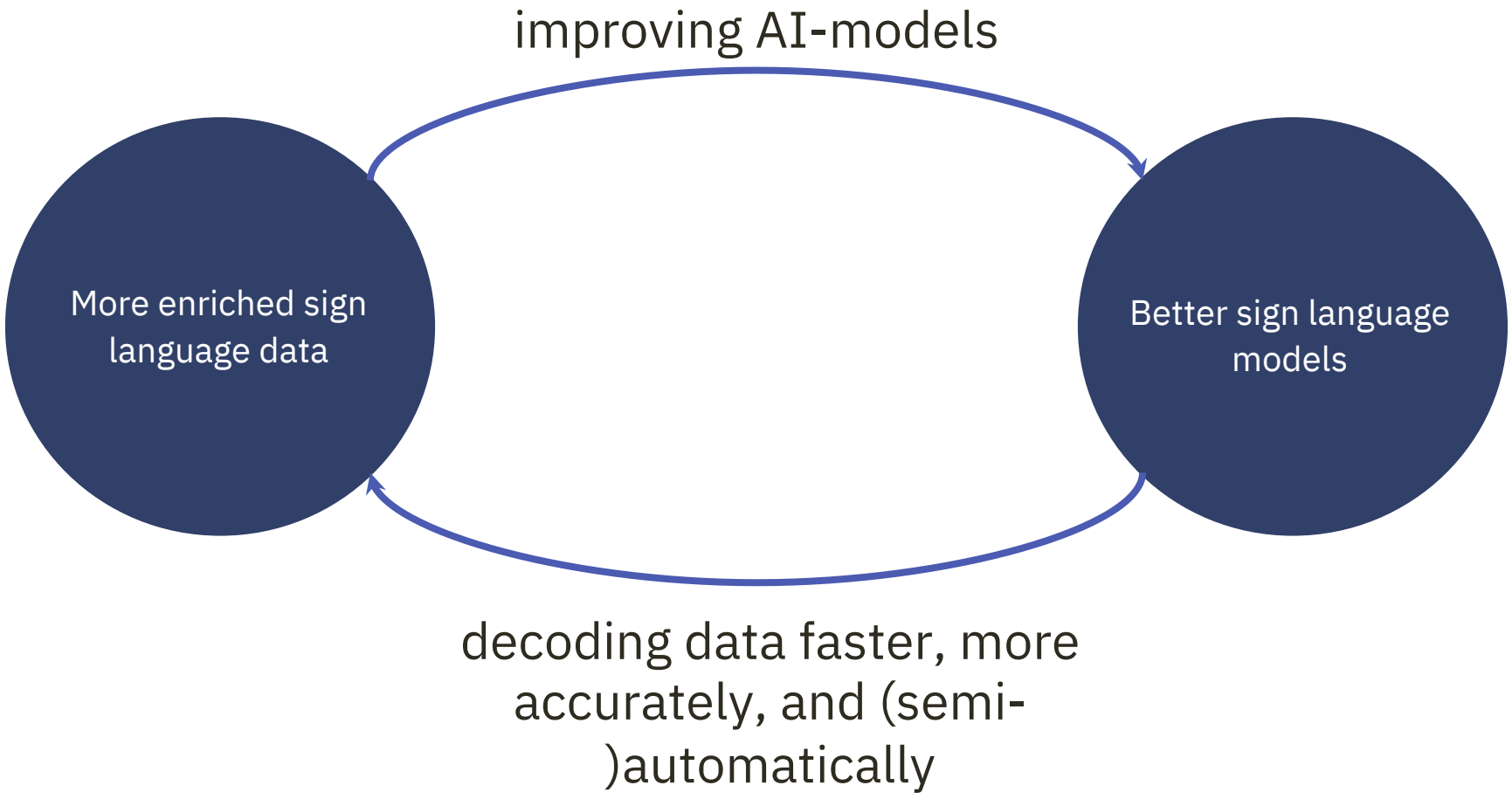
- What kinds of “enrichments” are needed?
  - translations, glosses, phonetic descriptions, non-manual markers (e.g. eyegase)…
- Who should process the data?
- What is the most efficient way to do this?
  - Barriers regarding software

! inconsistencies

Eudico Linguistic Annotator – ELAN



Cycle


improving AI-models
More enriched sign language data
Better sign language models
decoding data faster, more accurately, and (semi-)automatically

vgtc.
VLAAMS
GEBARENTAAL
CENTRUM

Conclusions

How to resolve the data bottleneck?

- Expanding the amount of enriched data
  - Better technical tools!
- Expanding the amount of high quality data
  - Community media?

Thank you!

For more information: caro.brosens@vgtc.be