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Department of translation, interpreting and communication
EQTIS

THE ARTIFICIAL BOOTHMATE (ABM)

Bart Defrancq

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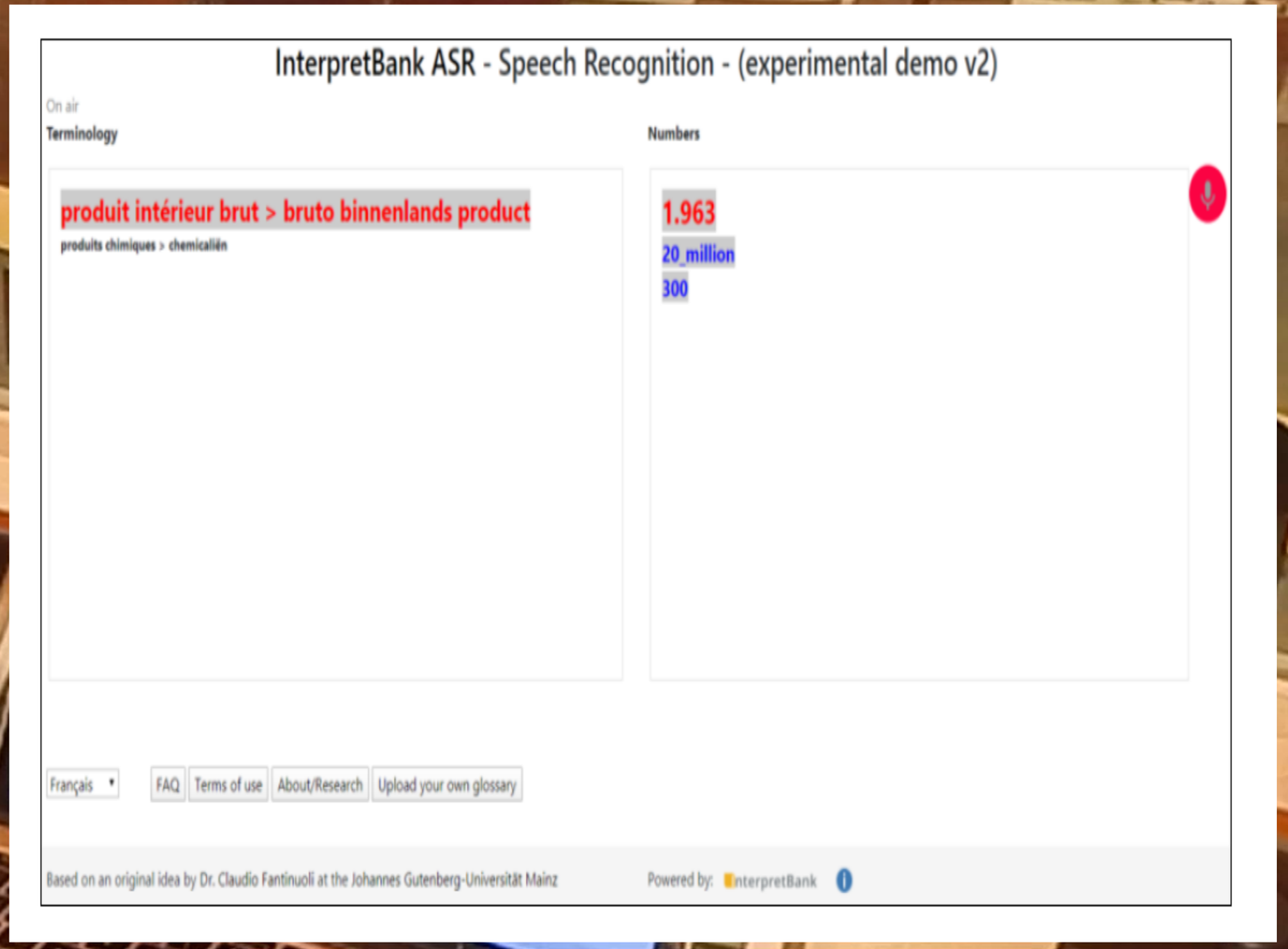
1. BACKGROUND

1. BACKGROUND

Part of the so-called **third wave** of technology in interpreting:

1. Consecutive > simultaneous
2. Electronic information resources
3. Interpreting support
   - audio-input for consecutive (simconsec)
   - visual input for simultaneous (CAI)
4. Automated interpreting

1. BACKGROUND



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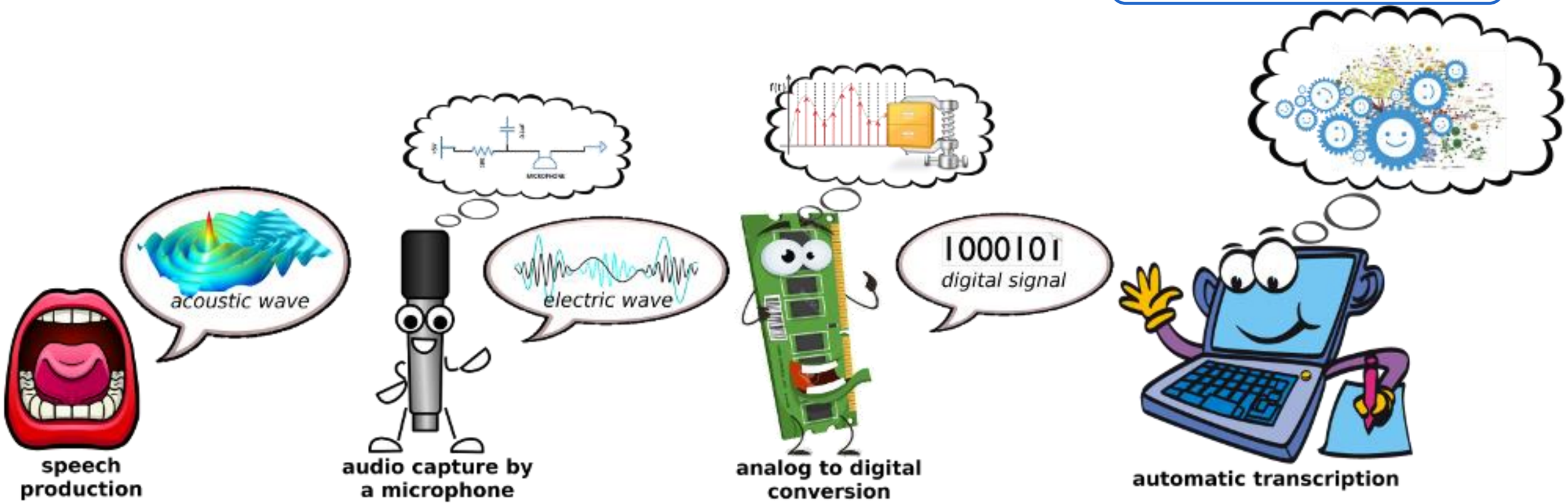
1. BACKGROUND

Language model



+ extraction

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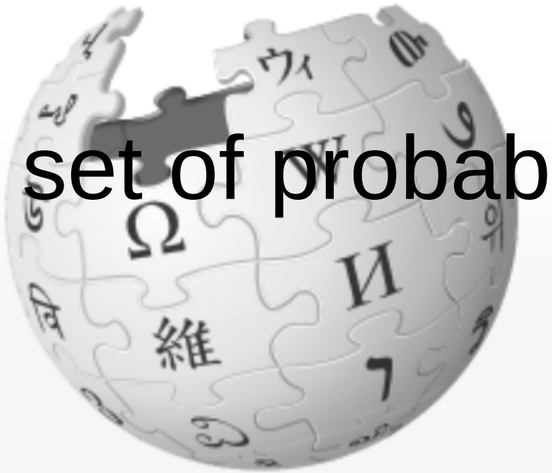
set of probabilities of



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Language model

From Wikipedia, the free encyclopedia

A **language model** is a probability distribution over sequences of [redacted] Given such a sequence of length m, a language model assigns a probability $P(w_1, \ldots, w_m)$ to the whole sequence. Language models generate

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1. BACKGROUND

- Probabilities are drawn from data (“training”, monolingual/ multilingual)

  The more the merrier?
- Calculation is based on different techniques (statistical, neural,...)

  Neural techniques can hold more information because they are layered
- Model is used to “predict” unseen data (= produce an output based on highest likelihood)

  Output delay/quality is function of complexity of model (computational power) and quality of input

1. BACKGROUND

2. CURRENTLY AVAILABLE

2. CURRENTLY AVAILABLE

INTERPRETBANK

smarterp

2.1. INTERPRETBANK

- Part of a broader terminology tool for interpreters (automatic extraction, automatic searches)
- Uses Whisper AI (ChatGPT)
- Speech recognition is cloud-based
- Central or decentralised
- Number extraction fully automatic
- Term extraction glossary-based
- Setup takes less than 5 minutes if the glossary is available

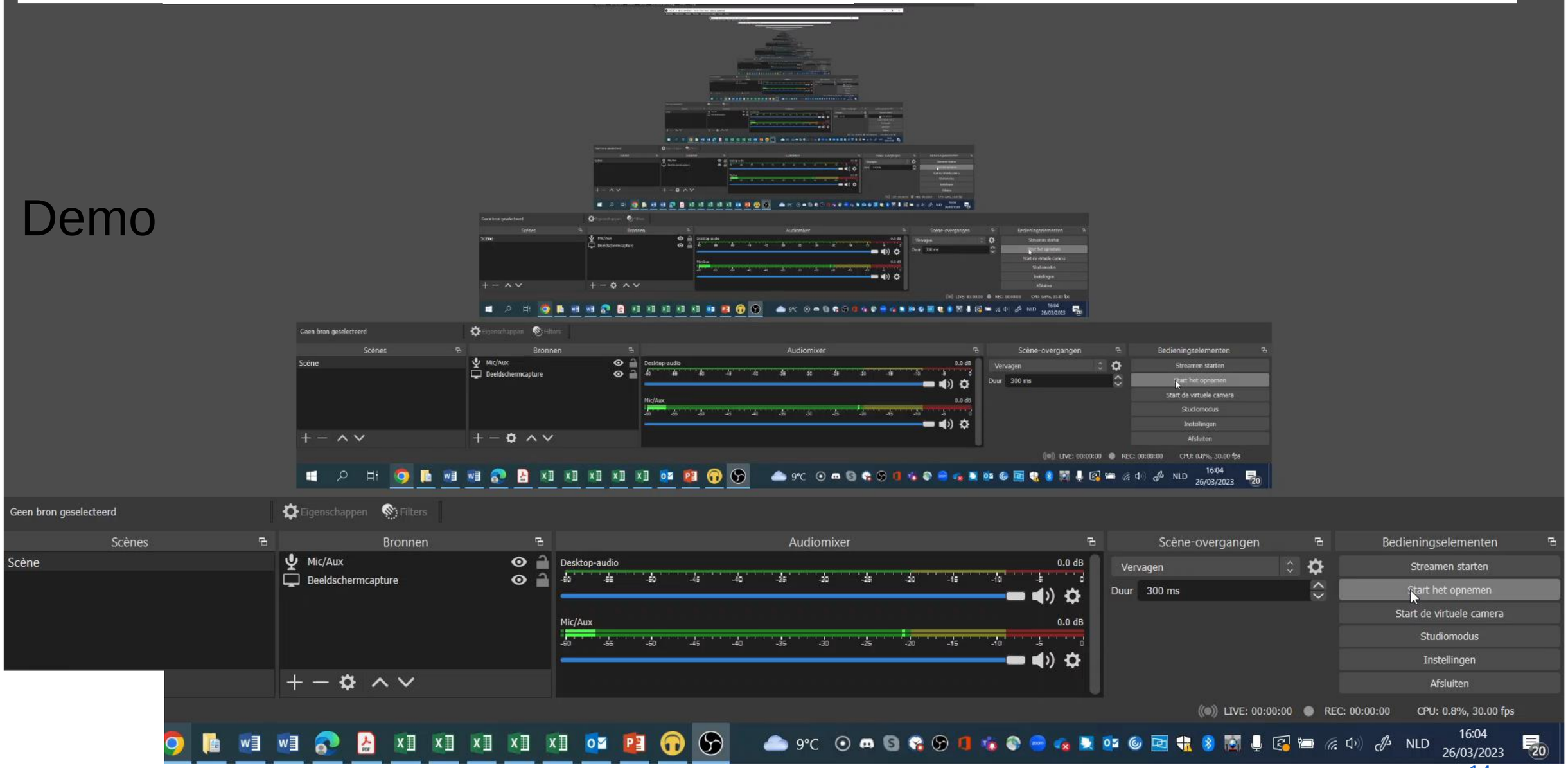
2.1. INTERPRETBANK

Demo

2.1.

INTERPRETBANK

Demo



2.2. smarterp

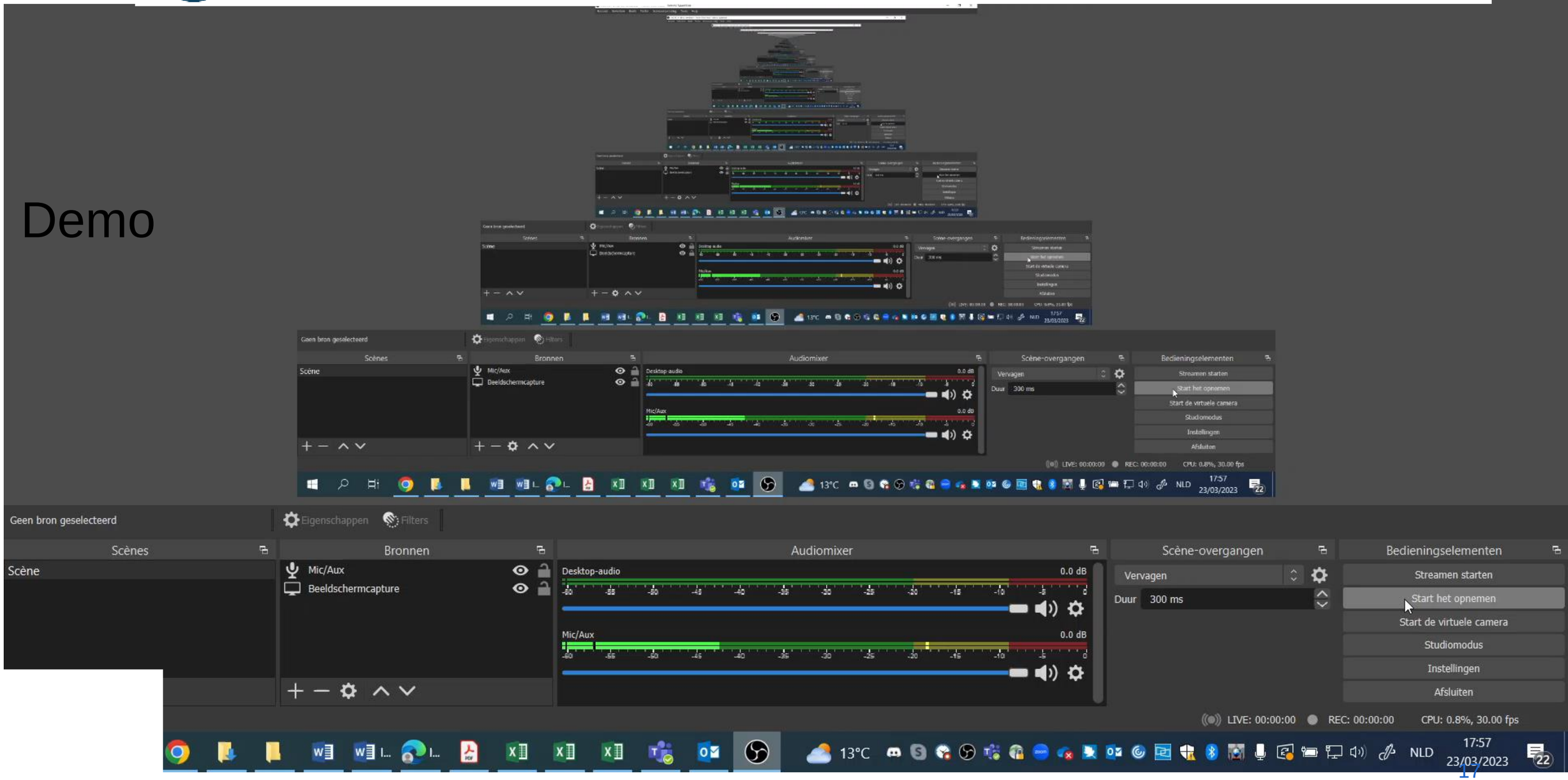
- Platform technology
- Combines with terminology management tools (automatic extraction, automatic searches)
- Uses Kaldi (open source) but on dedicated servers
- Centrally managed
- Number extraction fully automatic
- Term extraction glossary-based
- Named-entity extraction document-based
- Back-end is considerable (12 hours of additional training of the model)

2.2. smarterp

Demo

2.2.

Demo


Geen bron geselecteerd
Eigenschappen
Filters
Scènes
Scène
Bronnen
Mic/Aux
Beeldschermcapture
Audiomixer
Desktop-audio
0.0 dB
Mic/Aux
0.0 dB
Scène-overgangen
Vervagen
Duur
300 ms
Bedieningselementen
Streamen starten
Start het opnemen
Start de virtuele camera
Studiomodus
Instellingen
Afsluiten
LIVE: 00:00:00
REC: 00:00:00
CPU: 0.8%, 30.00 fps
13°C
NLD
17:57
23/03/2023

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3. USER EXPERIENCE (INTERPRETBANK ONLY)

3. USER EXPERIENCE

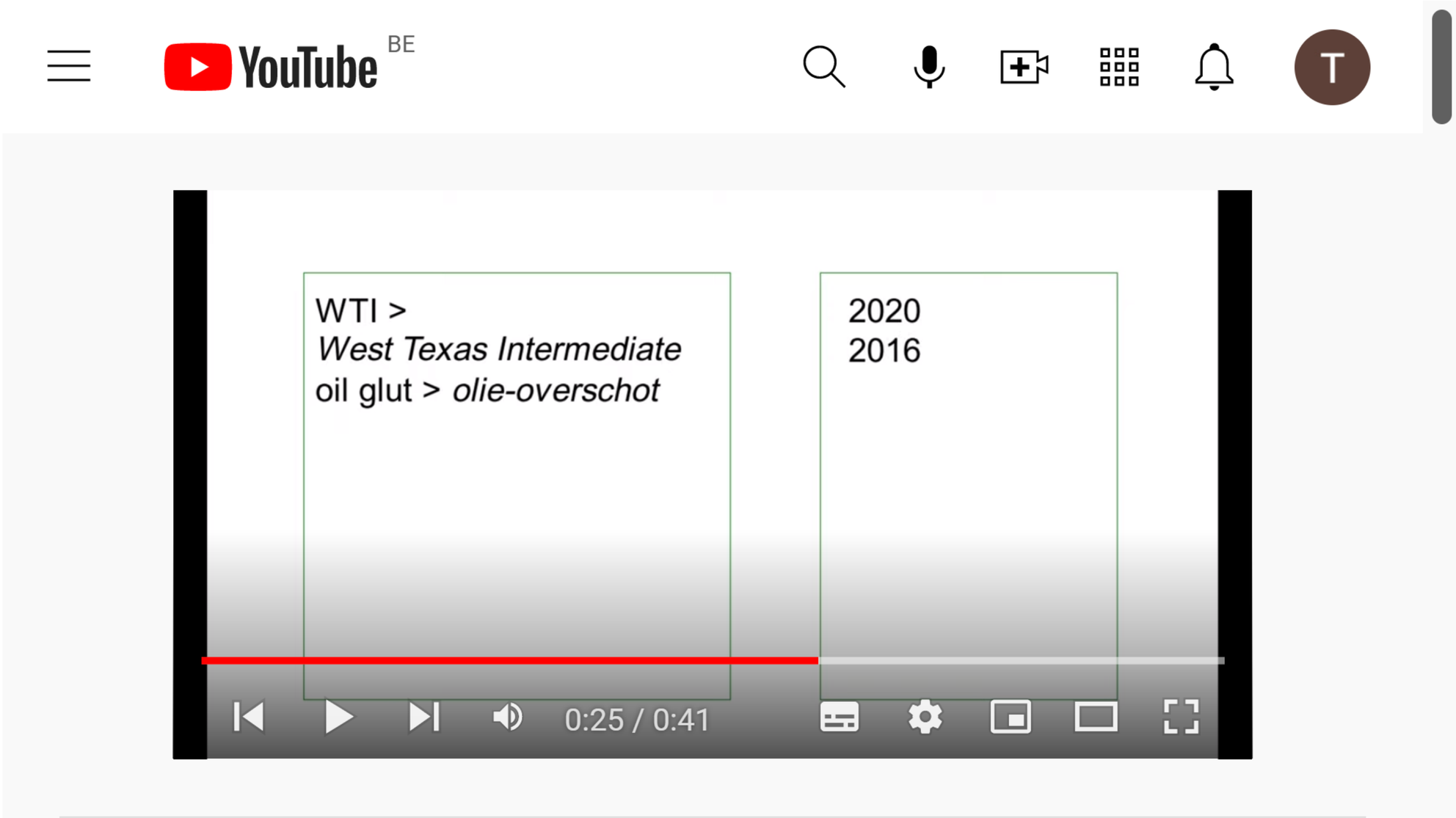
(Defrancq & Fantinuoli 2021; Van Cauwenberghe 2021)

	Onset latency		End latency		Recall	Precision
	Average (s)	Range (s)	Average (s)	Range (s)	%	%
Numbers (5.2019) (EN)	**1.20**	**0.54-2.56**	**0.69**	**0.05-1.78**	**99**	**96**
Terms (12.2019) (FR)	**2.96**	**0.96-11.30**	**1.83**	**0.55-10.53**	**73**	**81**

Frittella (2022): “SmarTerp [...] to display them [problem triggers] [...] currently with a 2-second latency

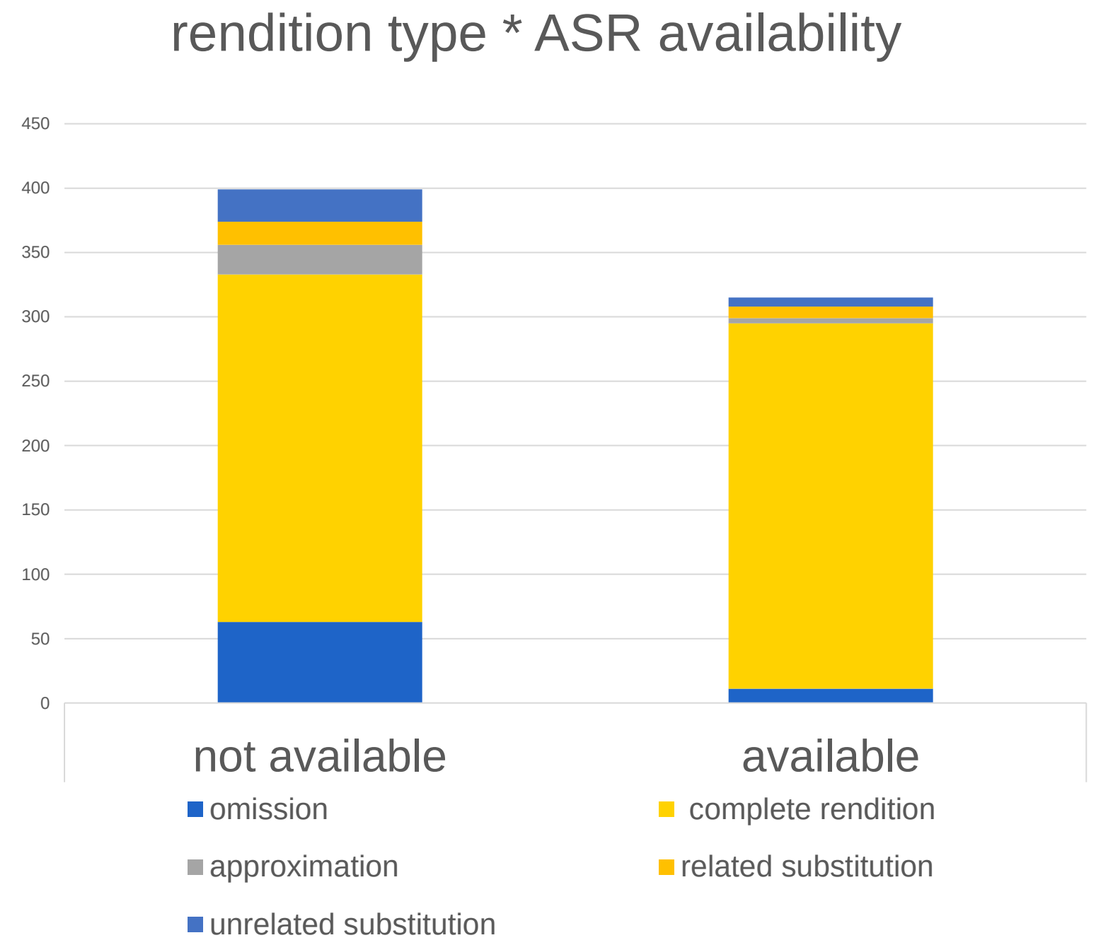
3. USER EXPERIENCE (DESIGN)

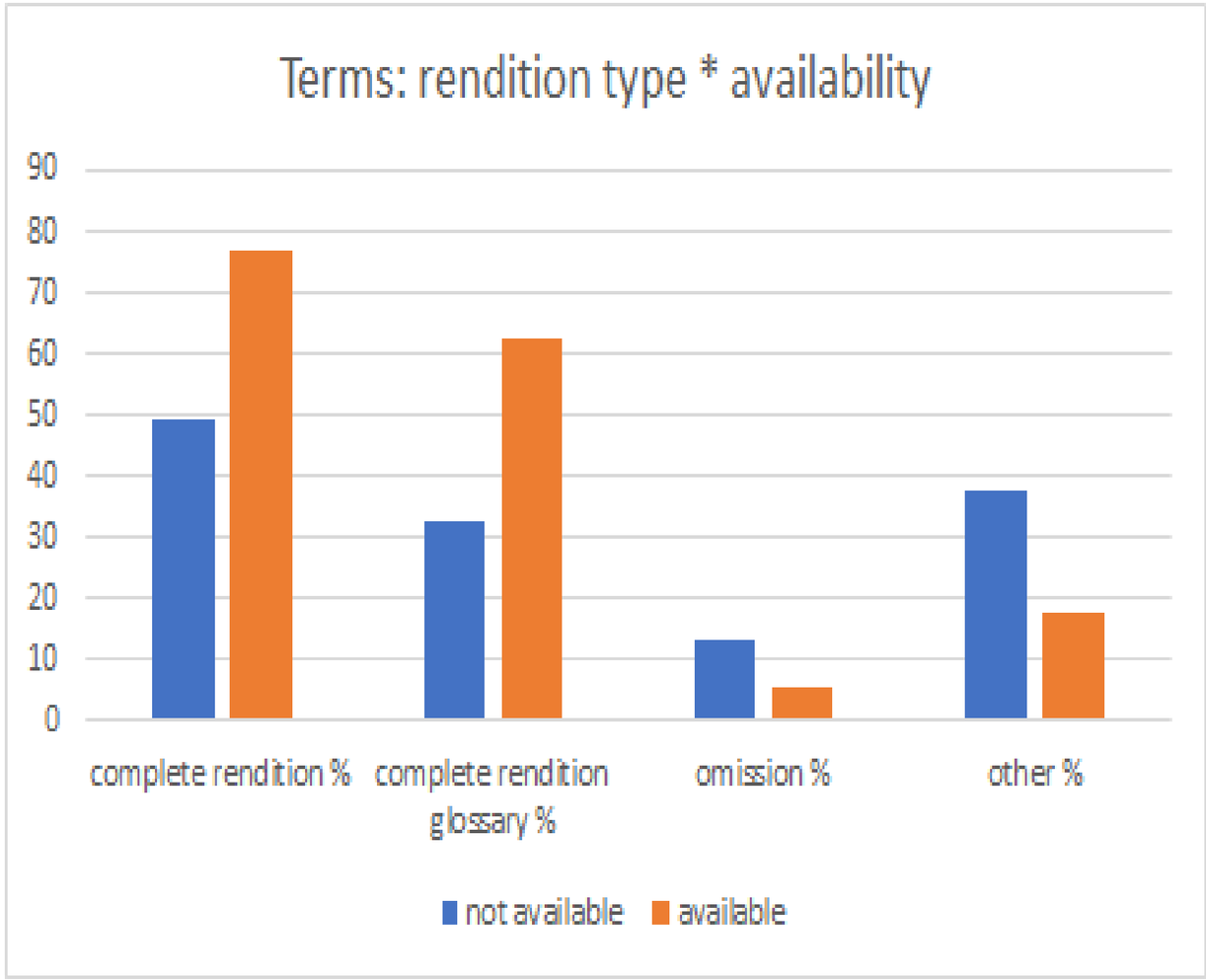
Survey 12.2020-1.2021 (Who participated?)



3. USER EXPERIENCE (UTILITY)

2019 experiments





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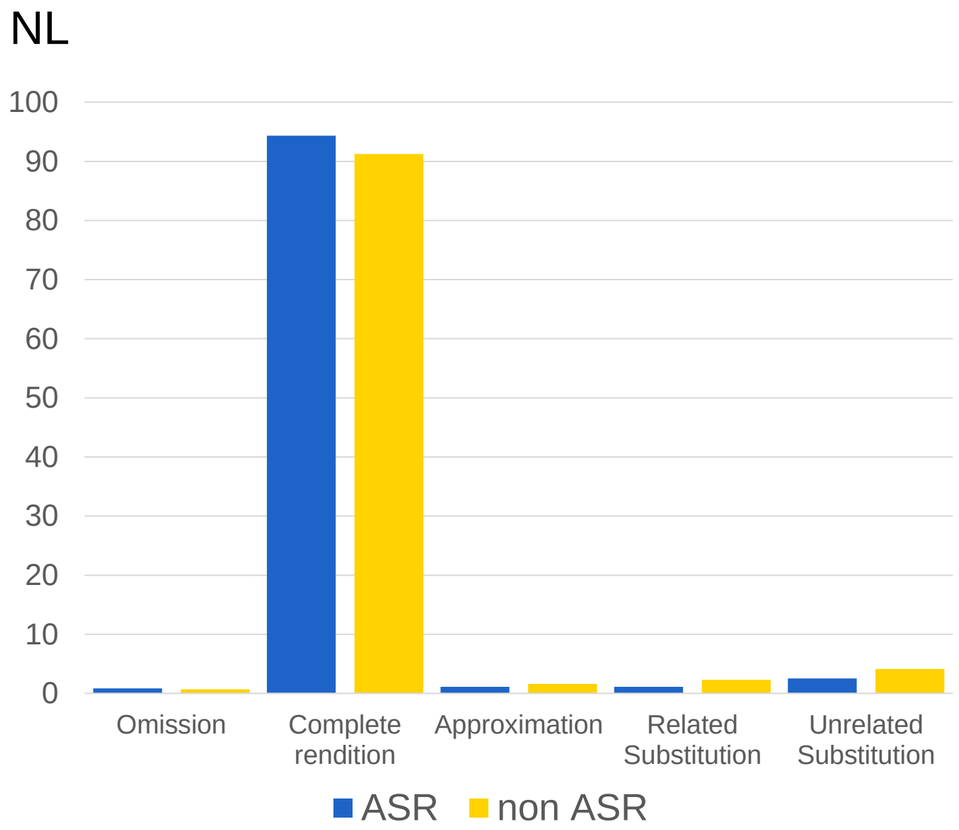
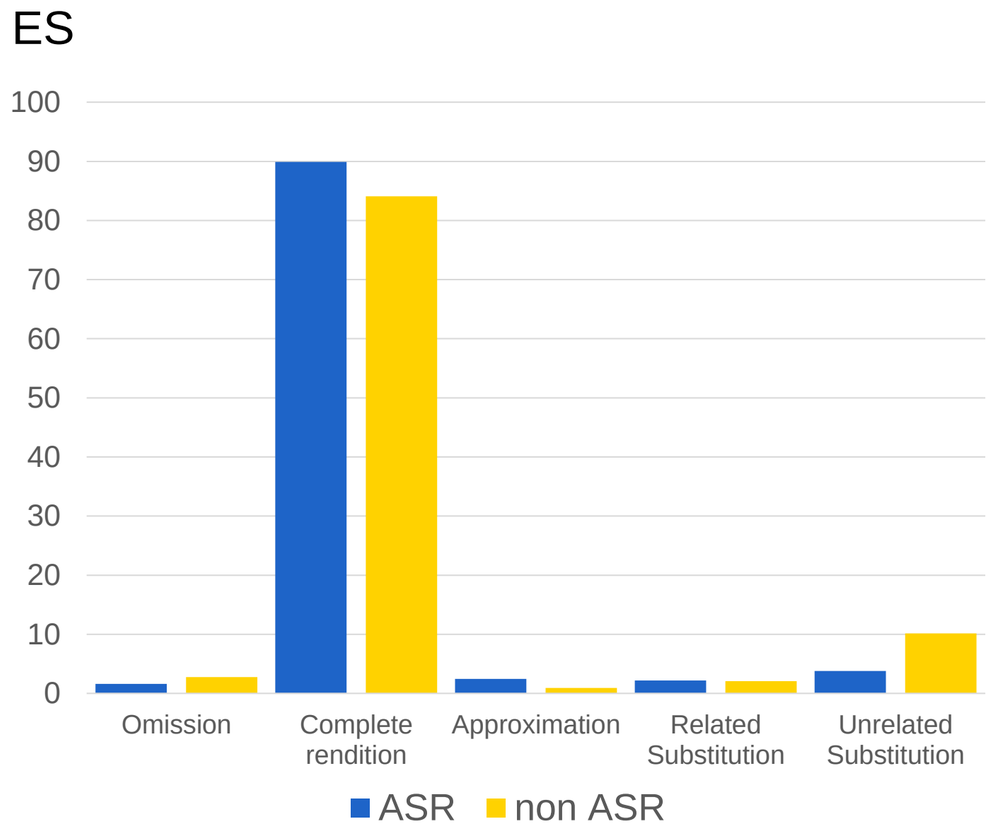
Increased accuracy but not in all, over-reliance, placebo? > training

3. USER EXPERIENCE (UTILITY)

2020 experiment: 22 professionals (SCIC): 11 ES; 11 NL





Increase CR: 3,1%
(6/11 terps Δ>1%)

Increase CR: 5,8%
(10/11 terps Δ>1%)

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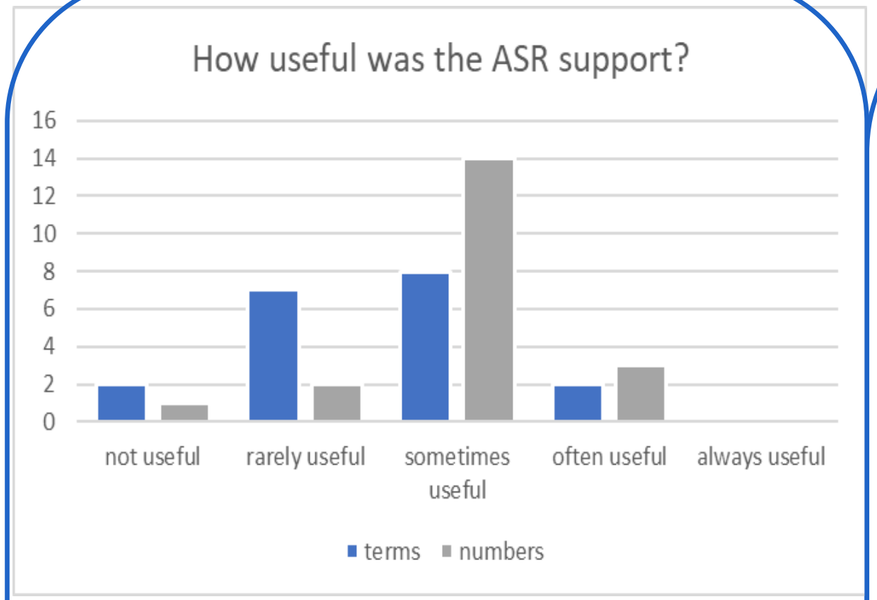
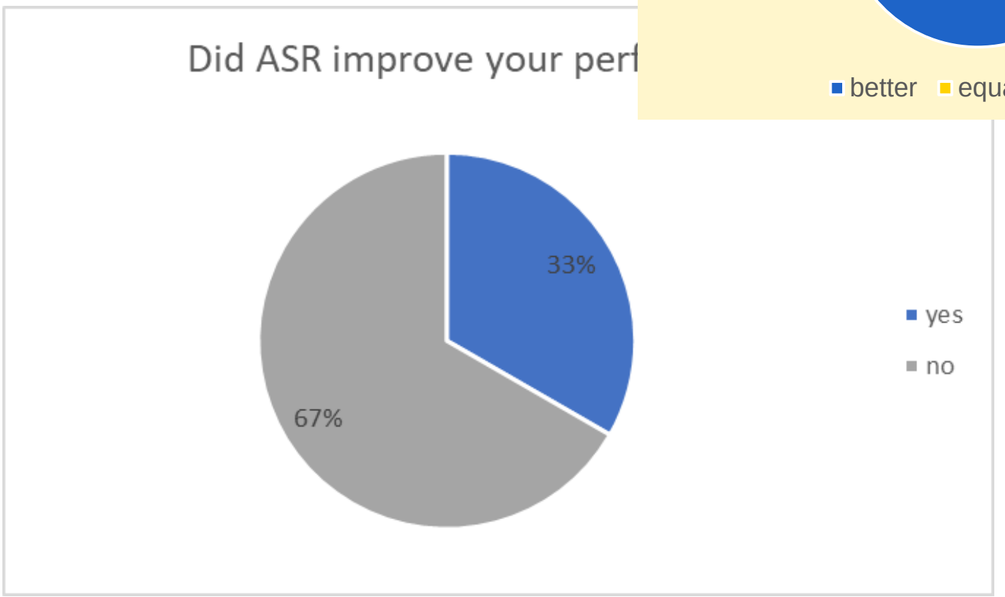
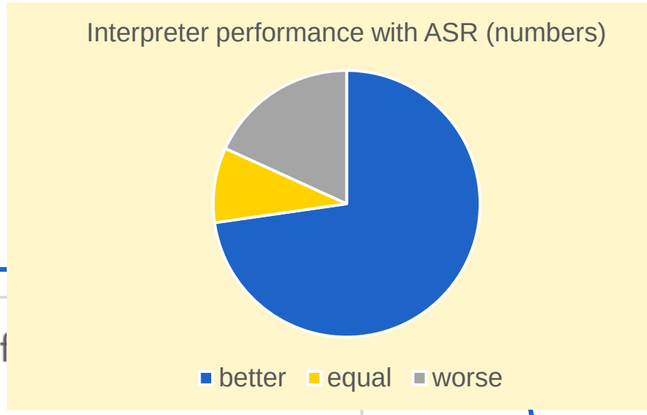
Effect on professionals is still positive but much less: accuracy gains between 3 and 6%

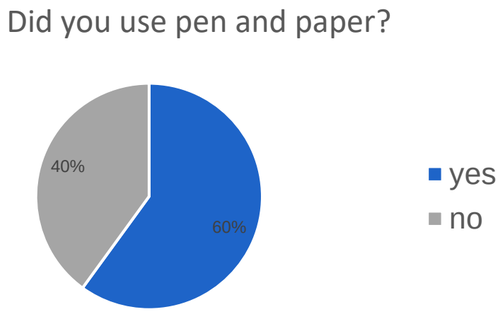
3. USER EXPERIENCE (UTILITY)

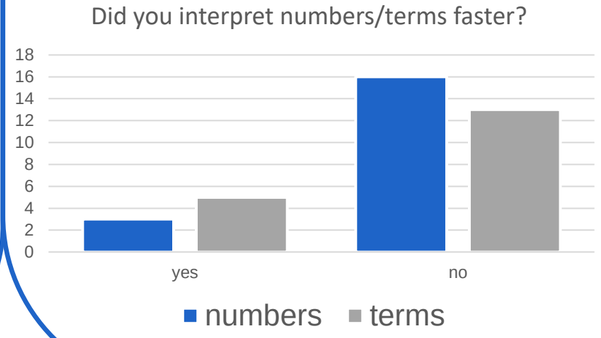
SCIC Post-experiment Questionnaire

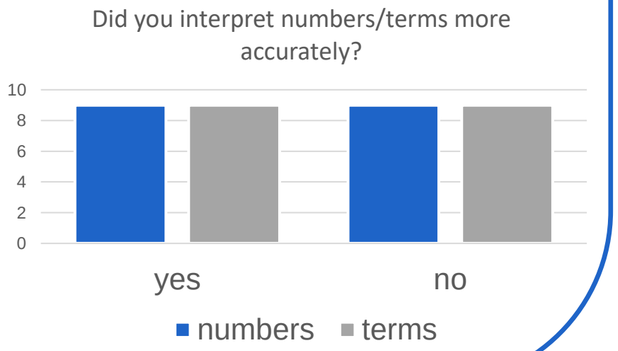












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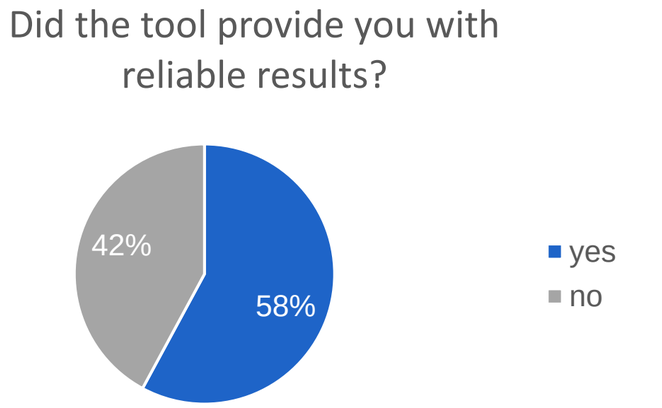
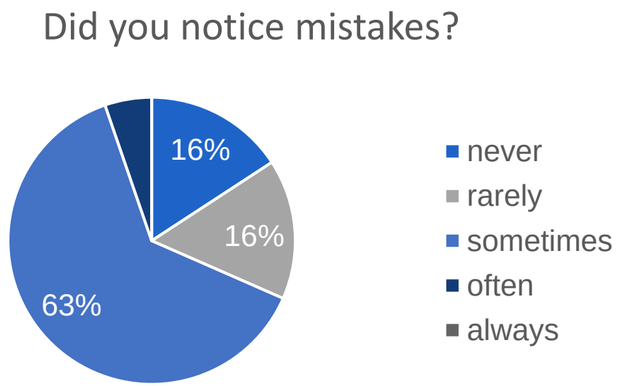
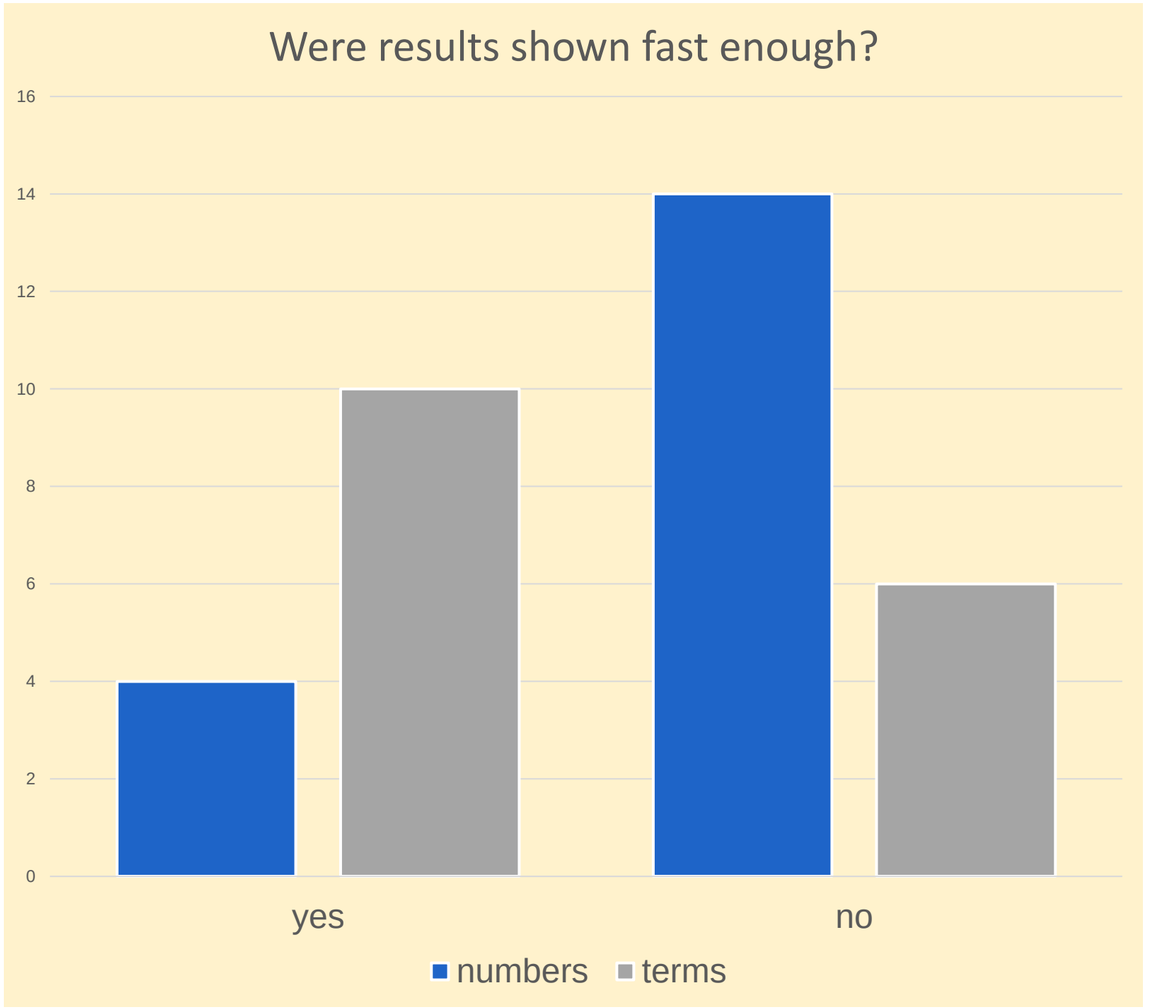
SCIC Post-experiment Questionnaire







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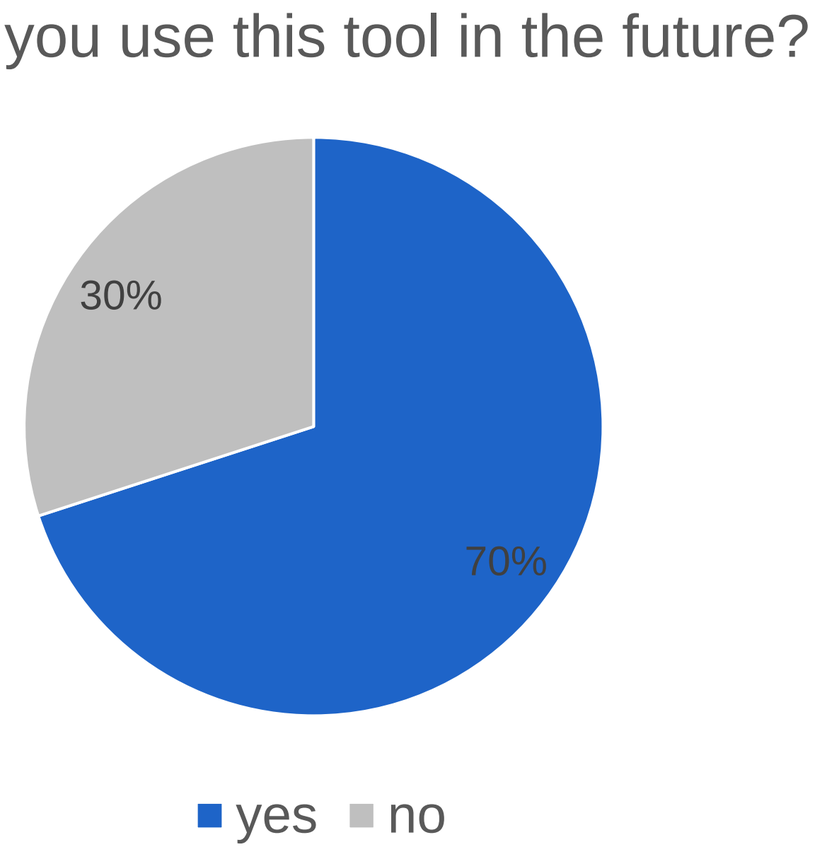
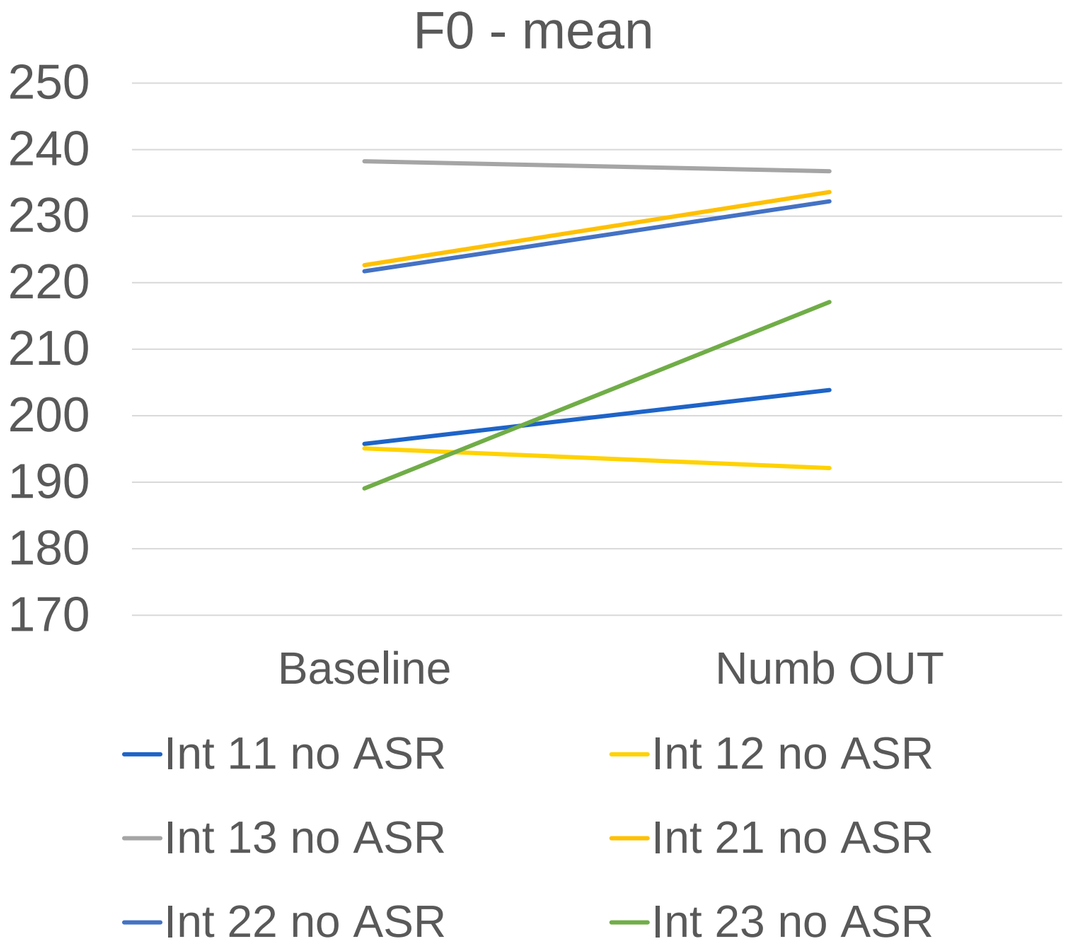
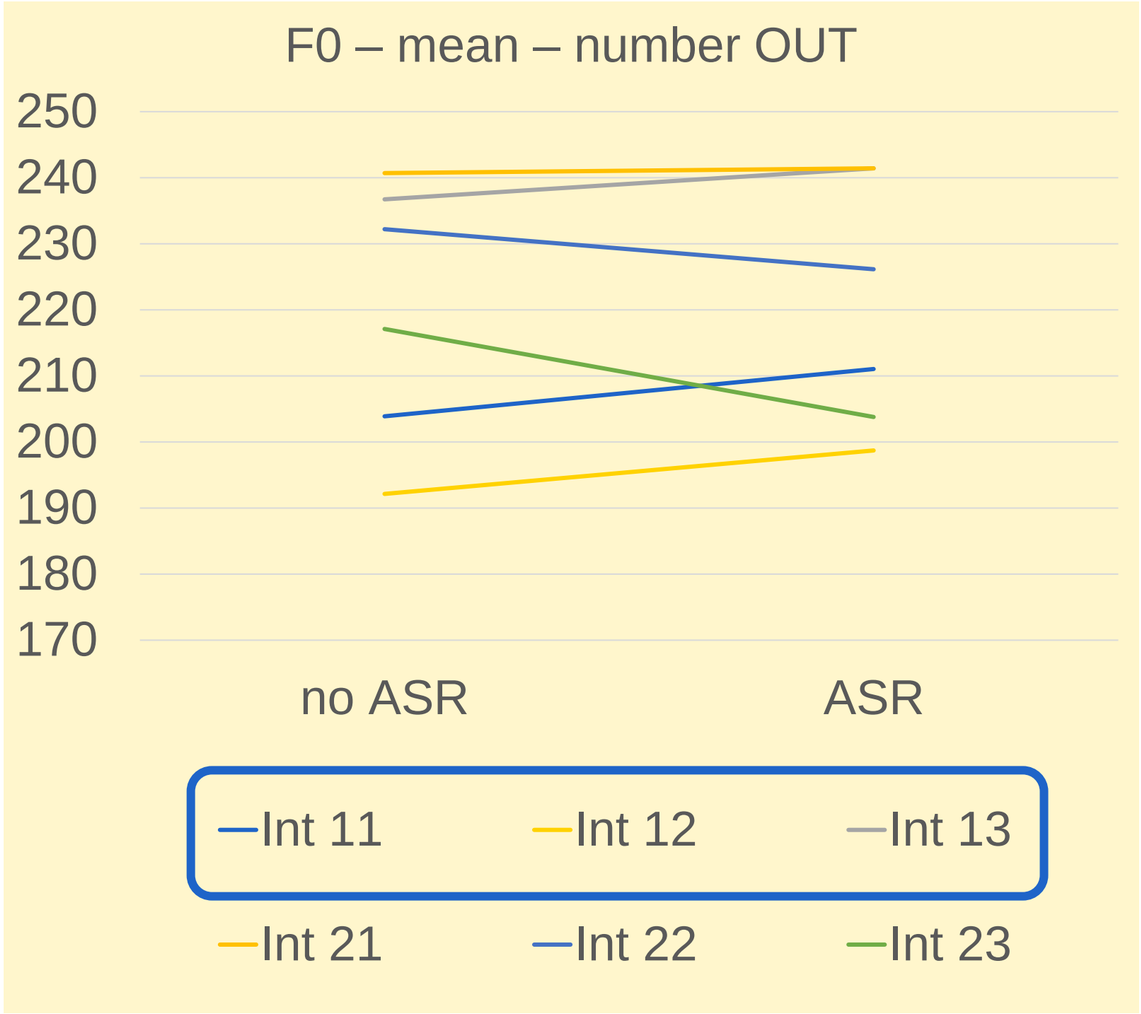
SCIC Post-experiment Questionnaire



2. USER EXPERIENCE (COGNITIVE ERGONOMICS)

2019 experiments





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3. USER EXPERIENCE (CONCLUSIONS)

1. ABM needs improvement (terms), but is useful, usable and beneficial: improved performance seemingly without additional cognitive load
2. Training is needed to work with the ABM; 3 short videos were produced on the technology, working with the technology, preparing for the technology (compile glossaries)
   https://www.eabm.ugent.be/coursematerials

4. DISCUSSION

4. DISCUSSION

Who owns the best trained language models?

Google, Meta, Microsoft,... (and European Parliament)

> *data access (= data exchange)*

> *confidentiality*

> *dualism in the profession (PSI vs conference)*

> *scaffolding of training programmes*

4. DISCUSSION

What about human interpreting in the fourth wave?

- *Speech translation*
- *Automated/machine interpreting*
- *Interpreters' USP?*

What about interpreters' skill sets?

- *Add technology?*
- *Add computational knowledge for technology?*

FACULTEIT LETTEREN EN WIJSBEGEERTE

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Thank you! Questions?

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