



**respeaking**  
proces - kompetencje - jakość

# Respeaking crisis points

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# 'Crisis points'

- **'Translation crisis points'** (Lörscher 1991, Pedersen 2008, Remael & Vercauteren 2010)
- 'Points in translation where the translator has to abandon his/her automated processes and resort to strategic behaviour' (Lörscher 1991)
- **'Audio description crisis points'** (Mazur 2013)
- Focus on translation/AD strategies

# Respeaking crisis points (RCPs)

- Focus on the respeaking process and respoken text
- RCPs
  - Moments in respeakers' output characterised by poorer performance
  - Caused by cognitive overload related to difficulty of the task

# Respeaking project (2014-2017)

- "Respeaking – process, competences, quality"
- To examine
  - Respeaking process
  - Respeaker competences
- Three groups of participants
  - Interpreters and interpreting trainees
  - Translators and translation trainees
  - Control group (no interpreting/translation background)

# Respeaking training

- No professional respeakers to test
- Respeaking training
  - Four two-day workshops (February - May 2015)
  - Pablo Romero Fresco, Carlo Eugeni, Juan Martinez



# Participants

- 58 participants
  - 23 translators
  - 23 interpreters
  - 12 controls
- Demographic data of the sample
  - Mean age 27.48 (SD 5.71)
  - 51 women, 7 men



# Tests in the project

- Working memory capacity tests
  - Digit Span
  - Listening Span
  - Reading Span
- Paraphrasing tests
- Proof-reading test
- Respeaking tests + semi-structured interview

# Respeaking test

- **Intralingual respeaking** (Polish to Polish)
  - Four 5-minute clips in randomised order
  - Variables: slow/fast, one speaker/many speakers
  - Genres: speech, chat shows, news
- **Interlingual respeaking** (English to Polish)
  - Slow one-speaker speech  
(President Obama in Warsaw)



# How to measure respeaking crisis points?

1. Peaks in EEG as cognitive load indicators
  - Concentration
  - Short-term excitement
  - Frustration
2. Drops in respeaker's performance
  - NER value over time
  - Delay
  - Edition and recognition errors
3. Length of pauses in respeaker's output
4. Eyetracking measures
  - Longer fixation duration



# Measuring RCPs with EEG

# Cognitive load indices

## ■ Concentration

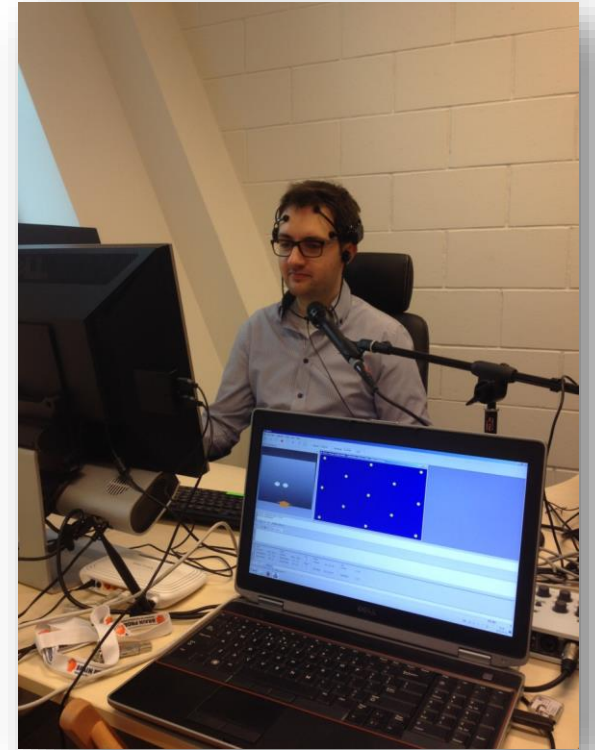
- The conscious direction of attention towards task-relevant stimuli
- Increased physiological arousal and beta waves along with attenuated alpha waves

## ■ Short-term excitement

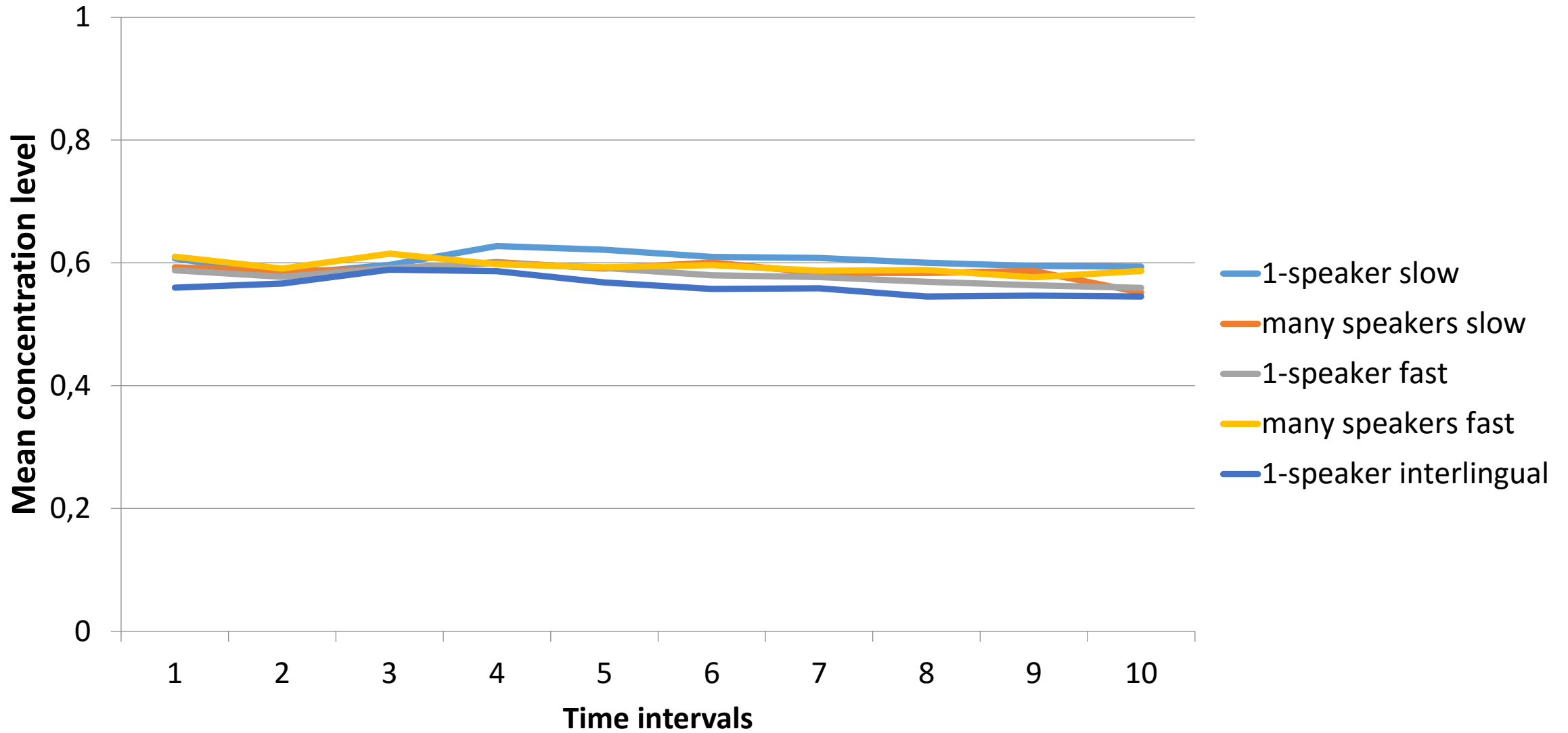
- A feeling of physiological arousal with a positive value
- Increase in pupil dilation, eye widening, sweat gland stimulation, heart rate and muscle tension

## ■ Frustration

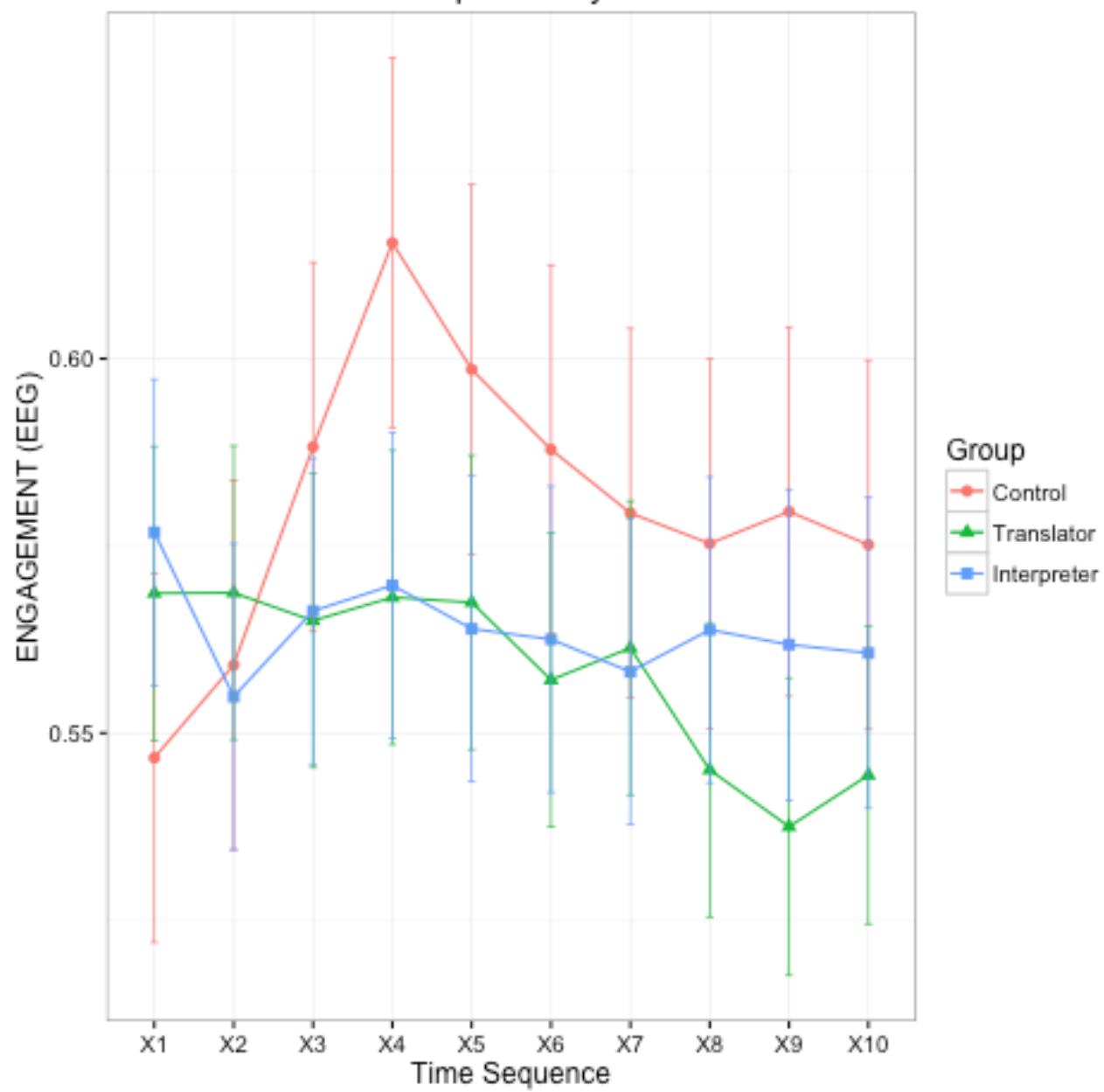
- The negative feeling of annoyance
- The higher the score, the more frustrated the study participant is



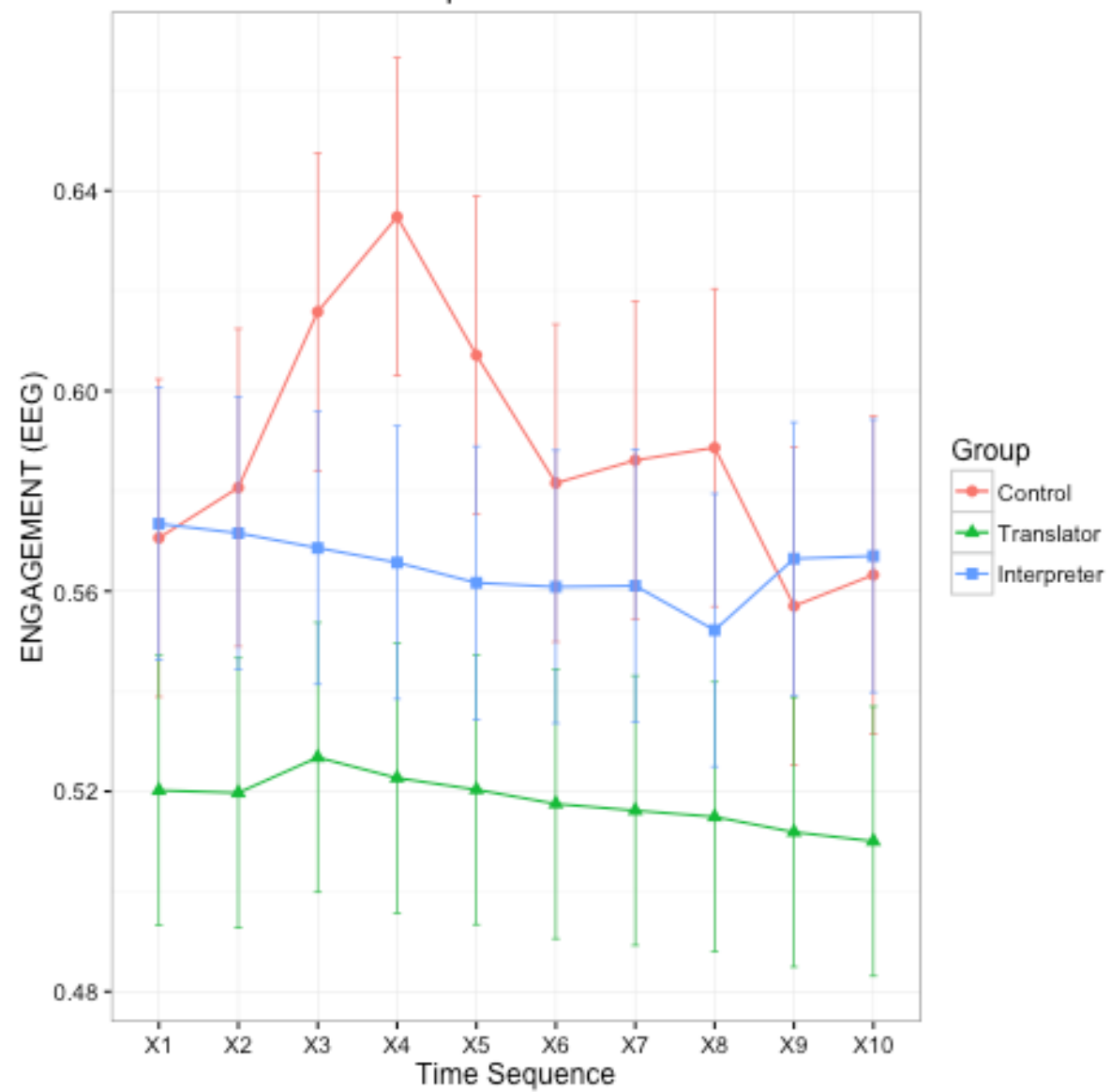
# Concentration level over time



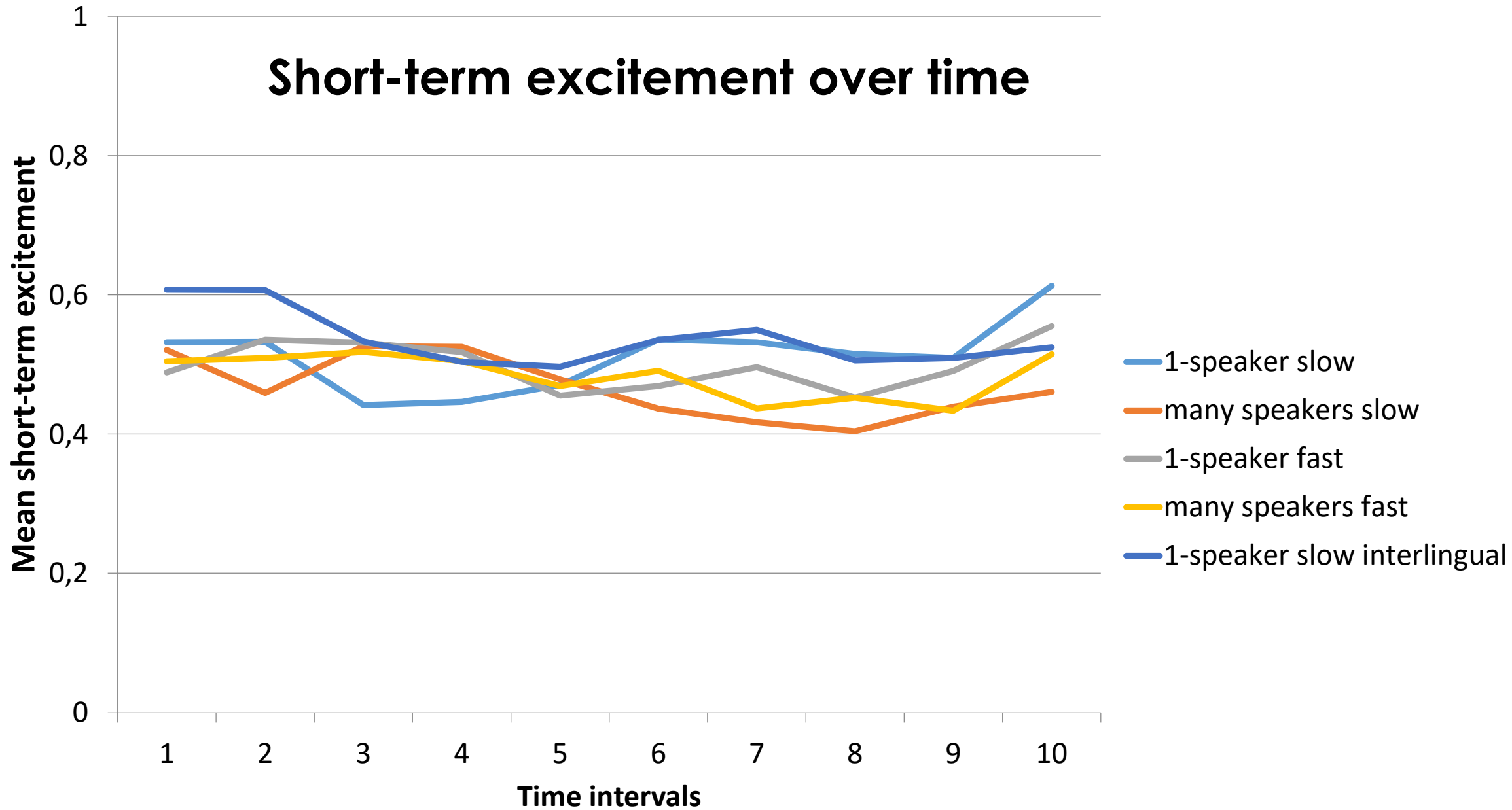
Clip = Fakty



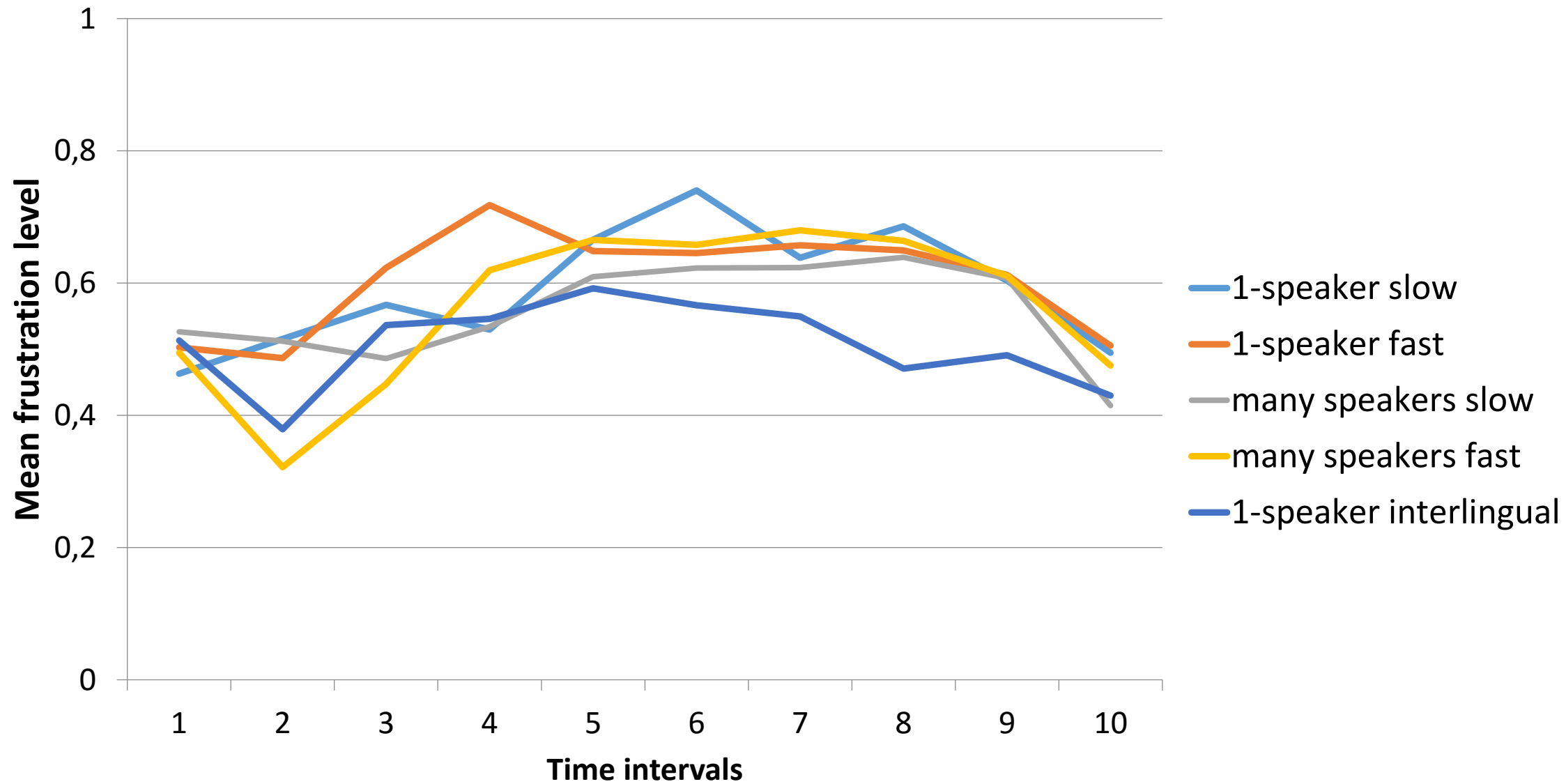
Clip = Obama



# Short-term excitement over time

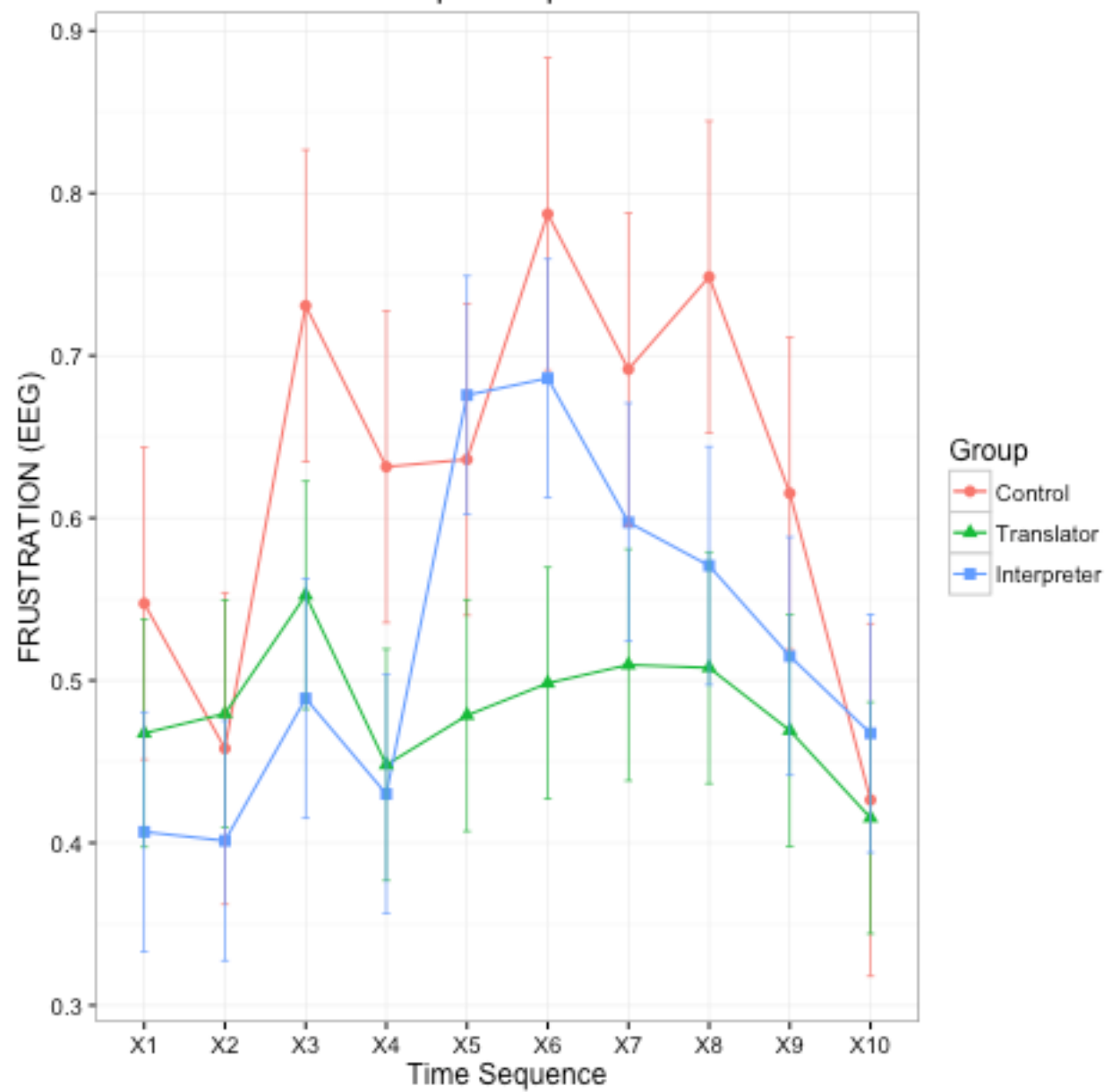


# Frustration over time





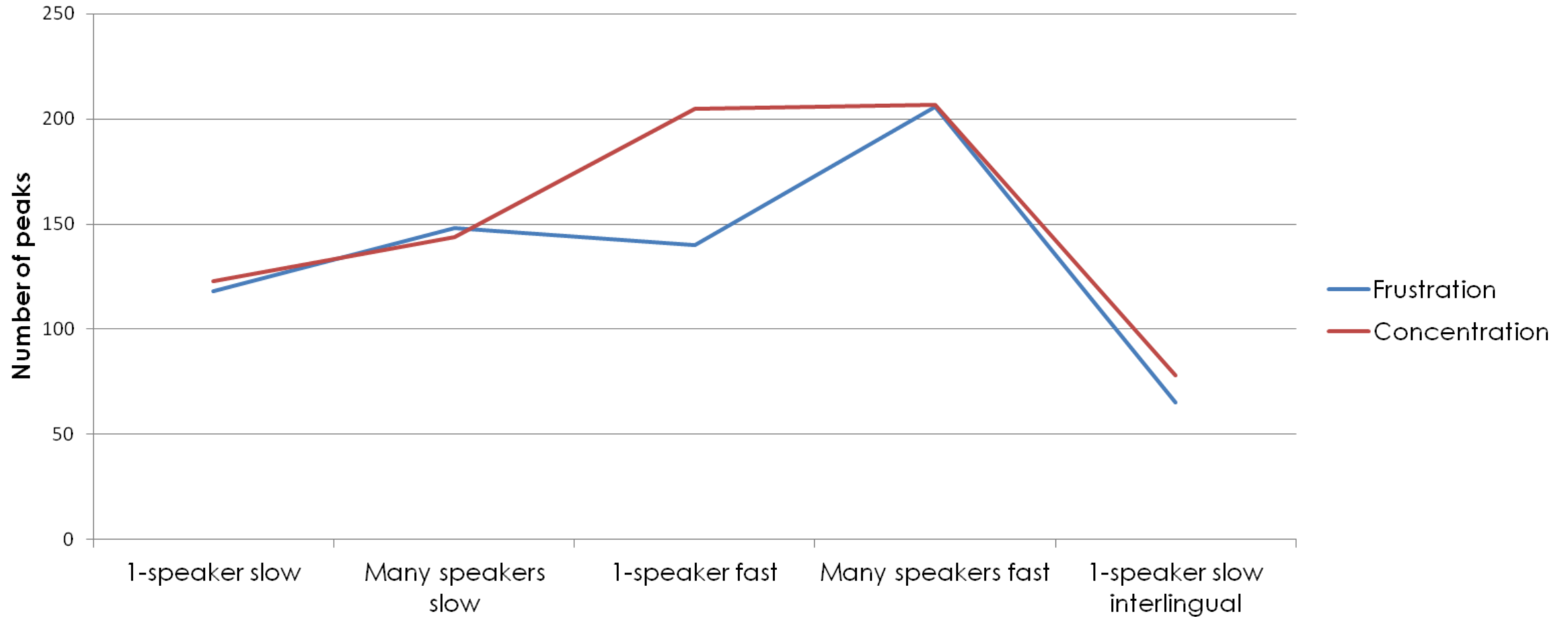
Clip = Kopacz



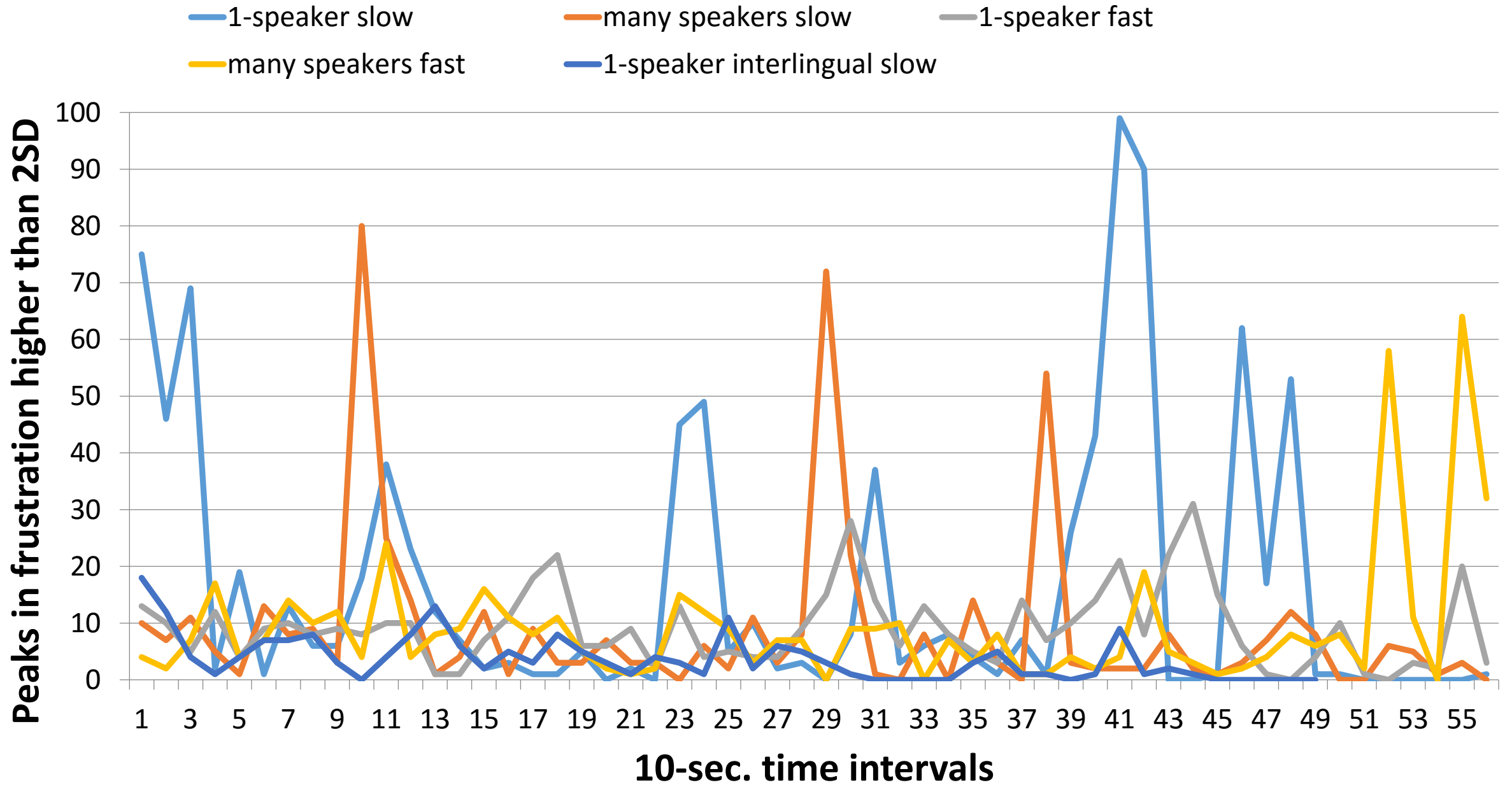
# What is a peak?

- Hypothesis: Respeaking crisis points may occur during peaks (in frustration, concentration, etc.)
- Peak
  - A moment when the indicator measured (concentration, frustration) was larger by at least 2 standard deviations (SD) from the mean for that person in this clip
  - 10-sec. time intervals
  - Emotiv EEG: 128 Hz (every 8 ms)

## Number of peaks per clip



Concentration: ANOVA (clip)  
 $F(1.8, 480.41) = 5.0544$ ,  $\eta^2 = 0.0168$ ,  $p = 0.0087$



# Where are concentration peaks? (1)

- The beginning of clips
- Visuals
  - Information graphics
  - Split screen
- Implied meaning
  - *Znaczenie Polski na arenie międzynarodowej zostało także potwierdzone nominacją naszego rodaka na jedną z najważniejszych funkcji w Unii Europejskiej.*



# Where are concentration peaks? (2)

- Scene changes and cuts
- Speaker changes
  - Short cuts between different speakers
  - Speakers other than the news anchor
- Overlapping / interrupted speech
- Proper names
  - *Jeżeli pan będzie wyciągał te stare rzeczy, to mogę powiedzieć, że dzisiaj na listach **Twojego Ruchu** jest **Anna Grodzka, Robert Biedroń**.*

# Where are frustration peaks? (1)

- Proper names

- *To tyle Korwin-Mikke. I o Hitlerze, i o gwałcie. Kazimiera Szczuka.*
- *Fakty po Faktach. Justyna Pochanke, witam państwa gorąco. Grażyna Szapołowska, Tomasz Raczek, czyli goście wari Oskara.*

- Numbers

- *Kopalnia pracuje dwadzieścia cztery godziny na dobę, siedem dni w tygodniu.*
- *Nie mamy co prawda czternastki, ona jest uzależniona od wyniku finansowego.*

- Overlapping speech

# Where are frustration peaks? (2)

- Enumeration
  - *Wszyscy ludzie, czy feministki, czy nie feministki, mężczyźni, kobiety, powinni jednak razem się przeciwstawiać.*
- Emphatic/inverted sentence structure
  - *Niech to, co nas łączy, będzie ważniejsze od tego, co nas różni.*
- Other sounds in the background
  - Demonstration chanting
  - Speaker at the parliament with VO narration
- Visuals (info graphics)



# Where are peaks in interlingual respeaking? (1)

- Concentration peaks
  - The very beginning of clips
  - Polish words pronounced by Barack Obama
    - *Stanisław Kostka church in Chicago*
    - *Kiełbasa, pierogis*

# Where are peaks in interlingual respeaking? (2)

- Frustration peaks

- Long sentences with long pauses

- *I bring with me the greetings and friendship of the American people... and of my hometown of Chicago... home to so many proud Polish Americans.*

- Historical and geographical references

- *The victory of **1989** was not inevitable. It was the culmination of centuries of Polish struggle, at times **in this very square**. The generations of Poles who rose up and finally won independence.*

# Sample peak in a news programme (1-speaker fast)

- Peak in frustration and concentration
- 10-second fragment: 01:00-:1:10  
(min:sec)
- Speech rate: 17.8 characters per second
- Visual complexity:
  - Split screen
  - Off-screen narration
- One long sentence



# Sample video recording with many frustration and concentration peaks

- Two consecutive peaks in frustration and concentration
- 20-second fragment
- Speech rate: 38 characters per second
- Overlapping speech
- Flashback to a previous programme



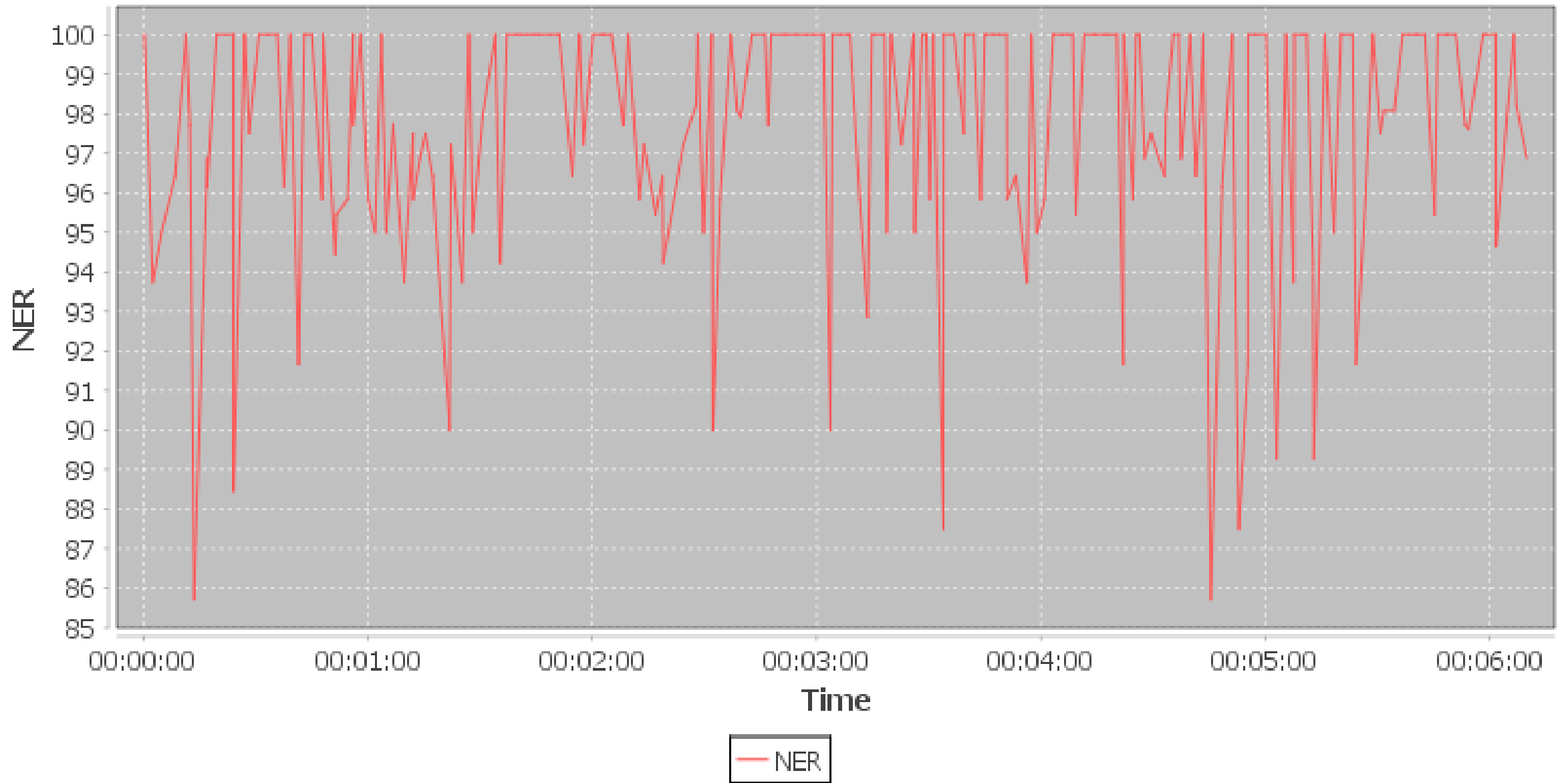
Measuring RCPs with drops  
in respeaker's performance

# How to measure performance in respeaking?

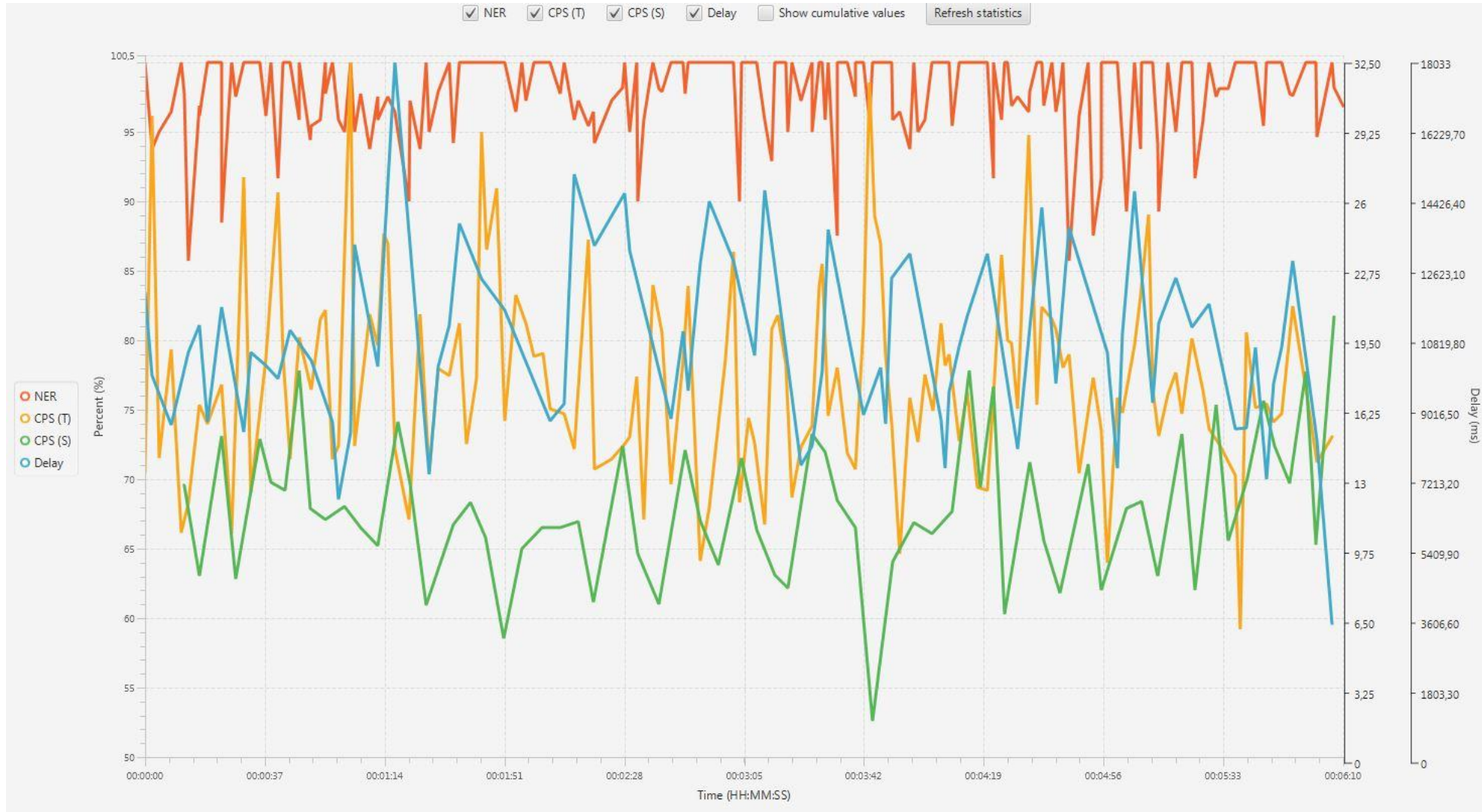
- NER model / NERstar
  - Accuracy rate
  - Edition errors
  - Recognition errors
  - Reduction
- Rating



# NER values over time



# Speech rate / NER value / delay





# Next steps in the analysis

- Length of pauses in respeaker's output
- Eyetracking measures
- Measuring text readability with FOG / Jasnopis
- Respeaking strategies
  - Which strategies were successful in dealing with RCPs?

# Conclusions

- Respeaking crisis points
  - Speech rate and number of speakers
    - Many speakers – higher frustration
    - Higher speech rate – higher concentration
  - Speaker changes
- Respeaker training
  - To teach respeakers strategies how to deal with RCPs

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**respeaking**  
proces - kompetencje - jakość



AUDIOVISUAL TRANSLATION RESEARCH LAB

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