



5TH

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Media for All

Audiovisual Translation: Expanding Borders

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Do shot changes really induce the re-reading of subtitles?

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Motivation for the study

- “Subtitles that are allowed to over-run shot changes can cause considerable perceptual confusion [...]. Eye-movement research shows that camera-cuts in the middle of a subtitle presentation cause the viewer to return to the beginning of a partially read subtitle and to start re-reading”

ITC Guidance on Standards for Subtitling (1999: 12)

- “Studies in eye movements [...] have shown that if a subtitle is kept on screen where there is a cut change, the viewer [...] starts re-reading the same onscreen text”

Díaz Cintas & Remael (2007: 91)

Shot change

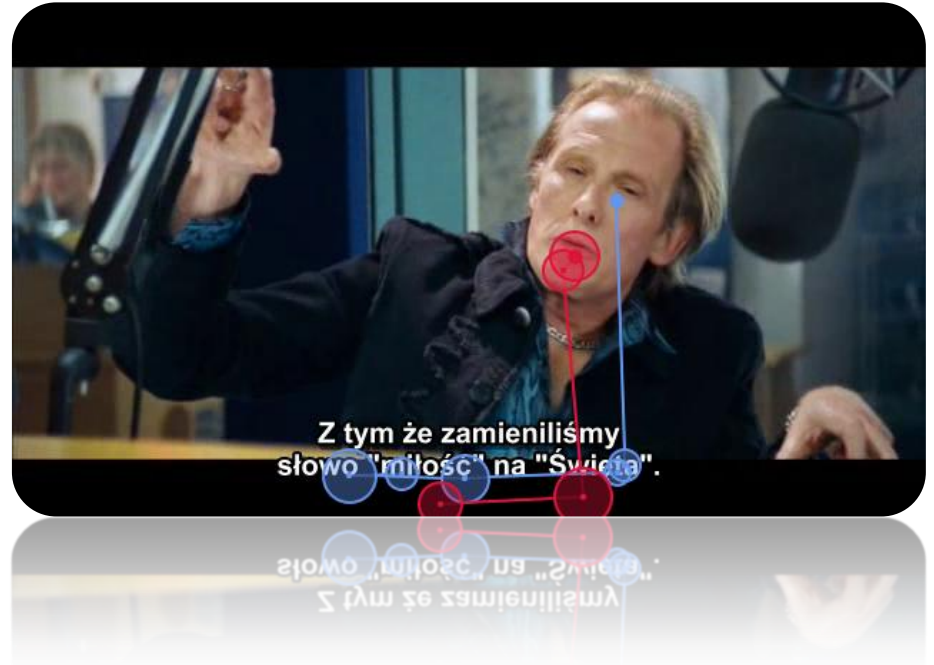


Cut



shot change

THE STUDY



Study material

- Two sets of 2-minute clips
 - Feature film: *Love actually* (2003, dir. Richard Curtis)
 - Documentary: *Super Size Me* (2004, dir. Morgan Spurlock)
- 12 two-line subtitles displayed over shot changes
 - Seven subtitles from *Love actually*
 - Five subtitles from *Super Size Me*

Subtitle characteristics

- Clips were subtitled interlingually from English into Polish
- Two reading speeds
 - 12 characters per second (cps)
 - 15 cps
- Maximum number of characters: 38
- EZTitles subtitling software
- Only subtitles displayed at least 20 frames before and 20 frames after shot changes

Participants

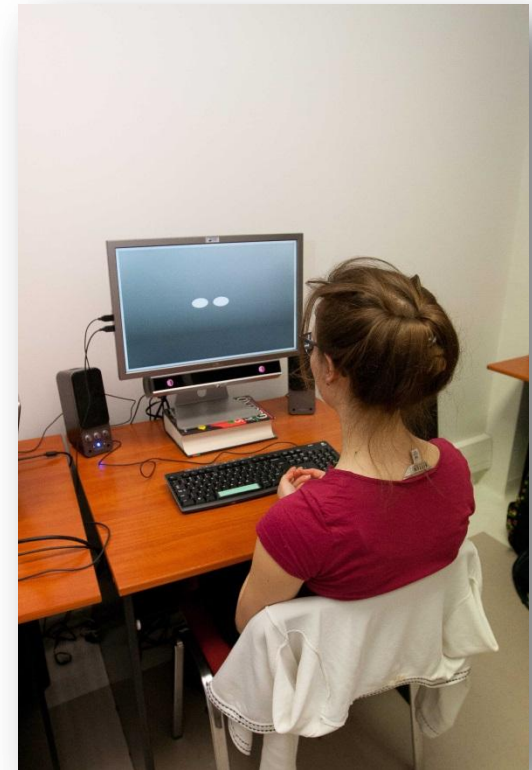


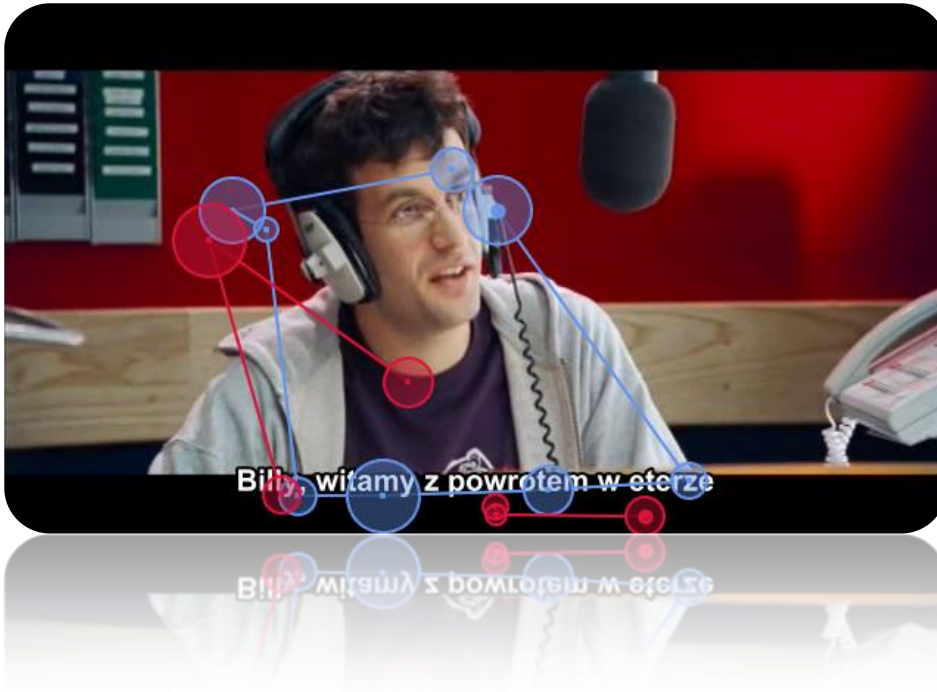
- Total number: **137**
- Hearing loss
 - **43** Deaf
 - **34** Hard of hearing
 - **60** Hearing



Eye movement recording

- SMI RED eyetracking system with a sampling rate of 120 Hz
- 17-inch monitor at a distance of about 60 cm
- Eyetracking measures
 - Glance count
 - Subject hit count
 - Number of fixations
 - First fixation duration
 - Transition matrix



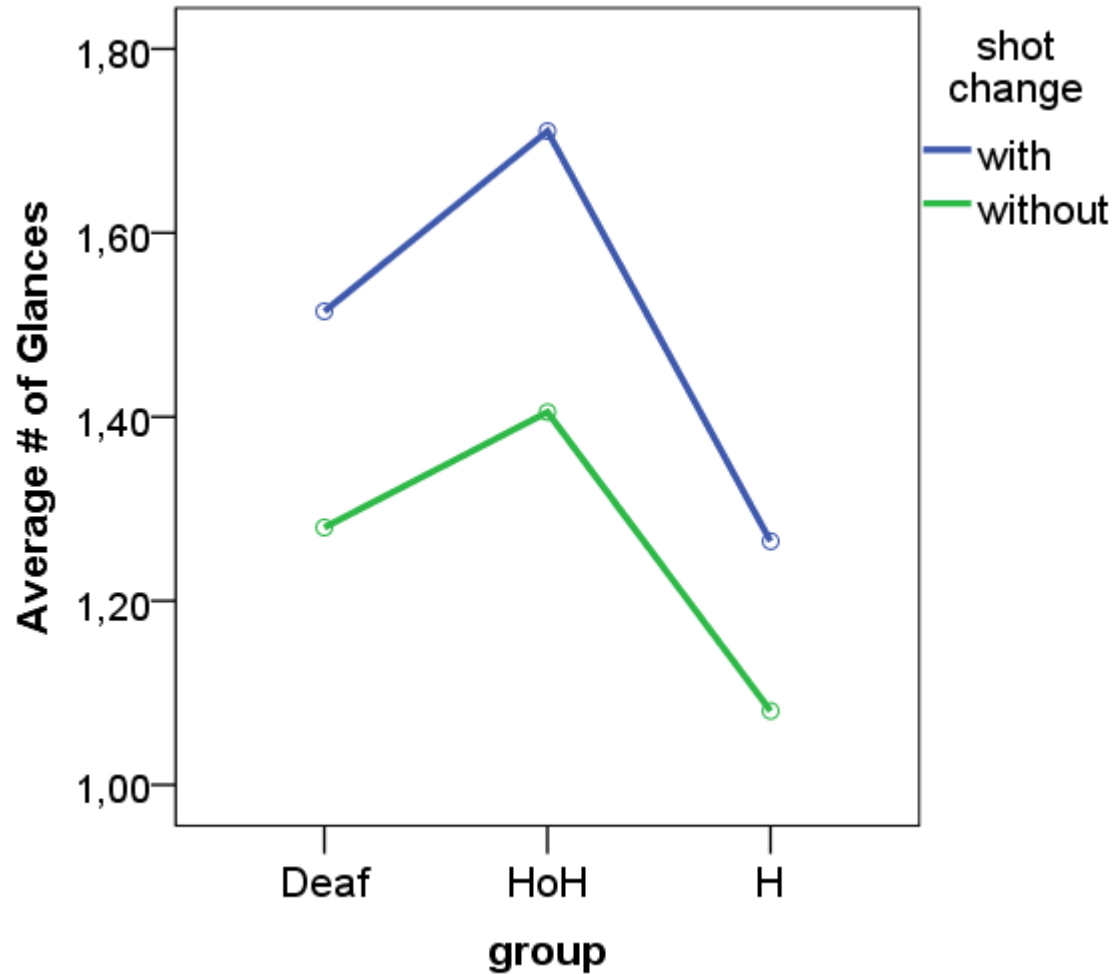


RESULTS

Gaze shifts between image and subtitle



Gaze shifts between image and subtitle



AOI at subtitle beginning



Subject hit count

- The percentage of people who looked at the beginning of subtitle before and after a shot change
- If shot changes trigger re-reading, then the percentage of viewers who looked at subtitle beginning after the shot change should be comparable or even higher than before the shot change

Subject hit count

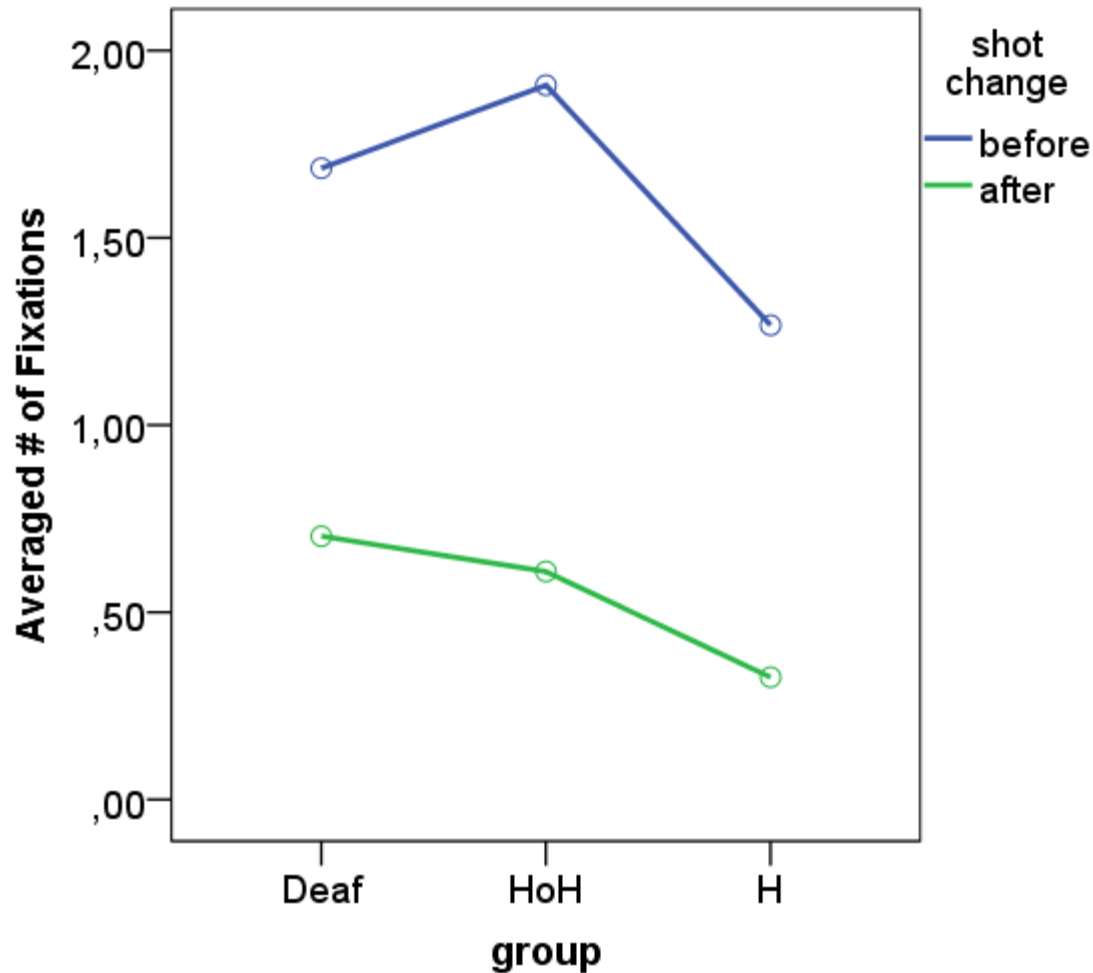


- ca. **72%** participants looked at subtitle beginning before a shot change
- ca. **30%** looked at subtitle beginning after the shot change

Number of fixations

- Number of fixations on AOIs on subtitle beginning before and after the shot change
- A smaller number of fixations after a shot change would indicate that viewers do not re-read subtitles

Fewer fixations after shot change



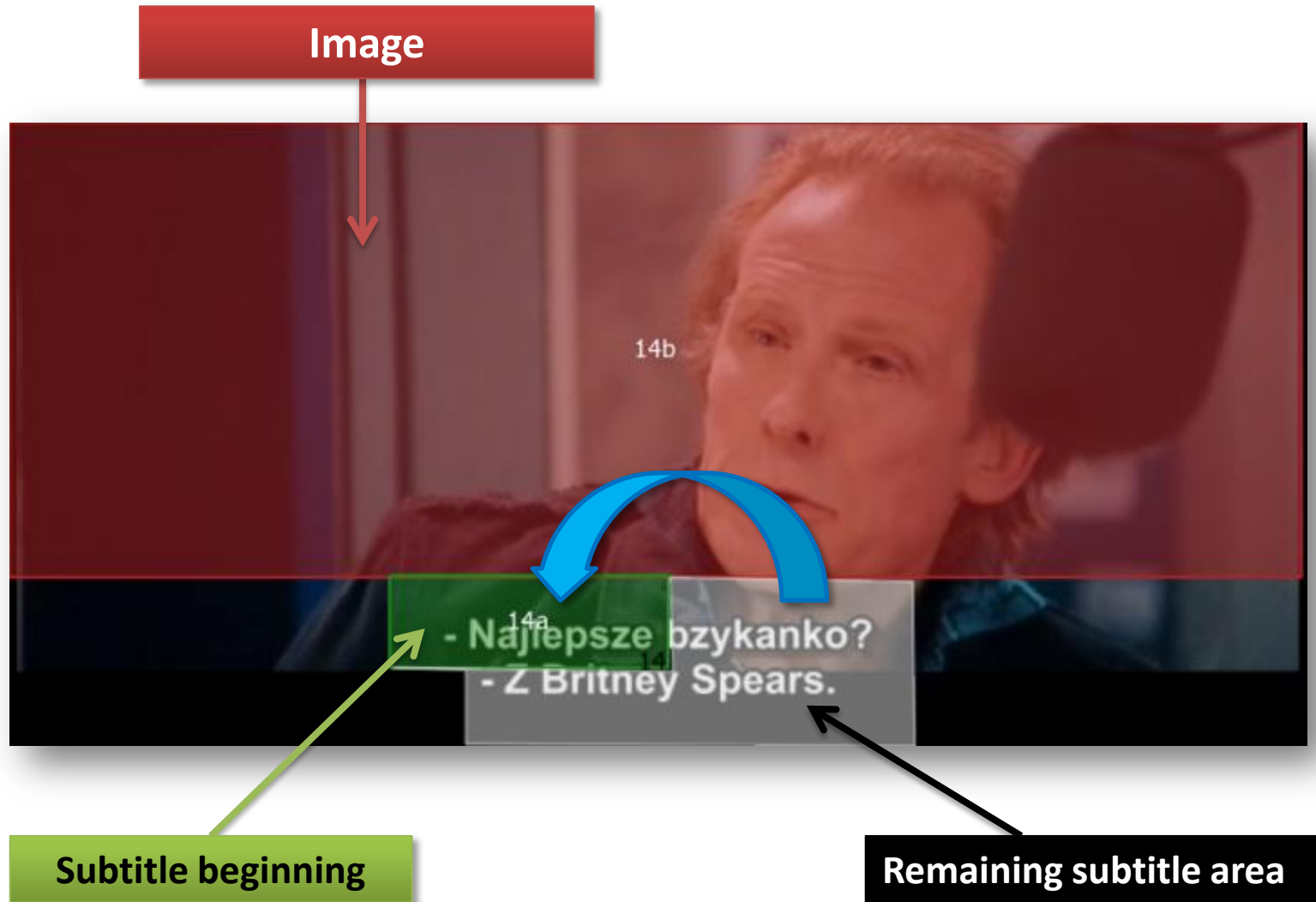
Longer first fixation duration

- FFD was significantly longer after a shot change than before the shot change
- Deaf participants had longer FFD than hearing participants



Longer FFD on subtitle beginning after the shot change may indicate a larger processing effort

Transition matrix analysis



Transition matrix after shot change

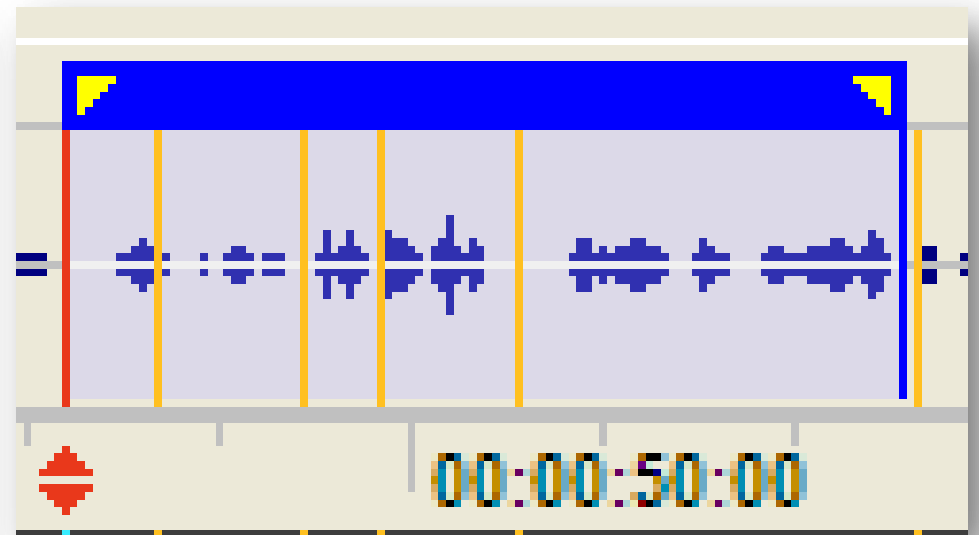
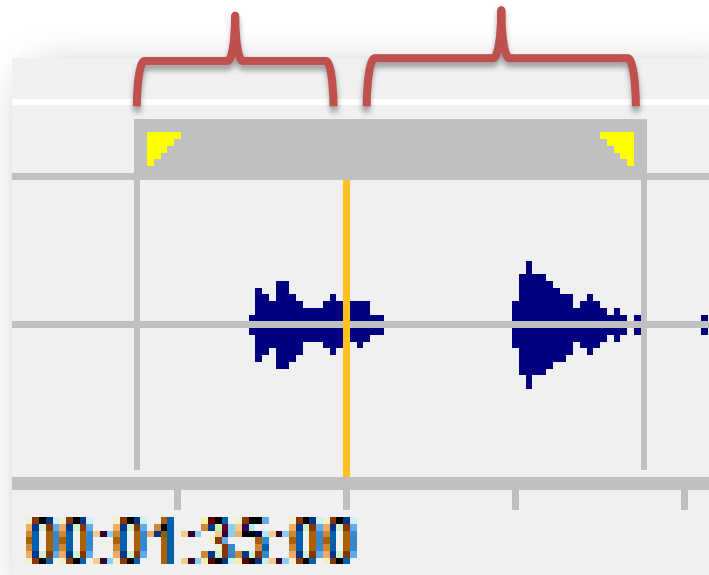
		TO		
F R O M	BEGINNING	0.35	0.22	0.43
	IMAGE	0.06	0.74	0.21
	REST	0.11	0.28	0.62
		BEGINNING	IMAGE	REST

Conclusions

- No re-reading of subtitles on shot changes
- No significant differences between the two reading speeds tested
- No significant differences between the two genres
- Differences in reading patterns between hearing, hard of hearing and deaf people
- Shot changes induce more gaze shifts between subtitles and the image (*deflections*)

Future studies

min. 20 frames



So what?

- Edit blindness – viewers tend to be unaware of standard film editing techniques and their film watching experience usually goes undisturbed by cuts (Smith 2008)
- Common (false?) belief that shot changes trigger the re-reading of subtitles – like Eskimo words for snow



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