

Focus types and the prosody-gesture link in Catalan and German: A production study

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BACKGROUND

Focus

Cognitive domain that refers to the presence of alternatives in the discourse (Krifka, 2008)

- **Background:** non-focused constituents.
- **Information focus:** most important information.
- **Contrastive focus:** overt presence of alternatives.
- **Corrective focus:** disagreement to a previous statement.

Prosody

- **Pitch accentuation** used to confer prosodic prominence.
- **Romance languages** are **less consistent** in their prosodic marking of **focus categories** than **Germanic languages**.
- Focused constituents receive **nuclear accentuation** (Féry & Kügler, 2008).

Co-speech gestures

Gesture **stroke:** obligatory phase of a gesture, integrated with speech semantically, pragmatically, and phonologically (McNeill, 1992)

- Referential gestures: clear referent in speech.
- Non-referential or “beat” gestures: no clear semantic meaning in speech

Interactions

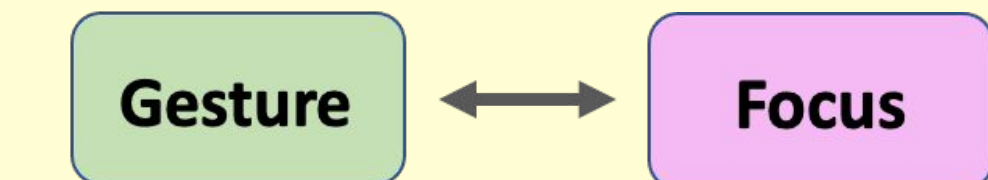
- **Focus and prosody correlate in terms of prominence** (Kügler and Calhoun, 2020)
- Focused information that marks **contrast or correction** is suggested to carry **stronger levels of prosodic prominence than information focus conditions** (Zimmermann, 2008)



- Gesture and speech are highly interconnected (McNeill, 1992), e.g. **more prominent pitch accents** (on new referents) were suggested to attract **more gestures and more prominent gestural movements in English** (Im & Baumann, 2020)

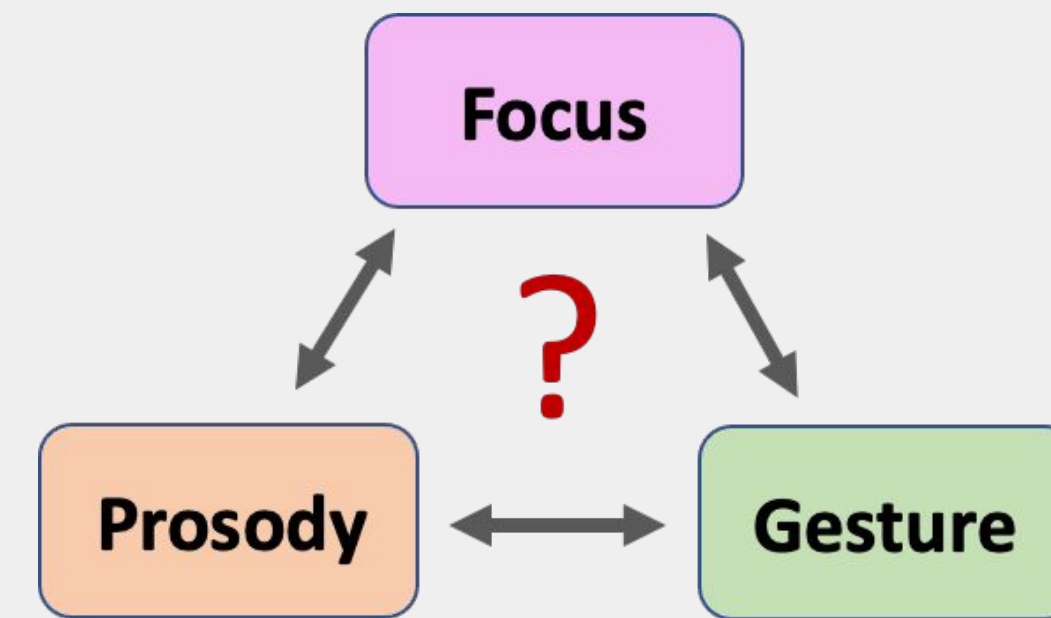


- **Non-referential (beat) gestures** (e.g., head nods, eyebrow movements, hand movements) have been reported to be involved in **discourse-marking functions**, such as marking **focus** (e.g., Loehr, 2012)



- However, **less is known about the joint contribution of prosody and co-speech gestures to the marking of focus conditions.**

RQ: Is pragmatic prominence in focus types reflected in multimodal prominence in Catalan and German? Is the relation between gesture presence and focus types direct, or is it mediated by prosody?



METHODOLOGY

Participants

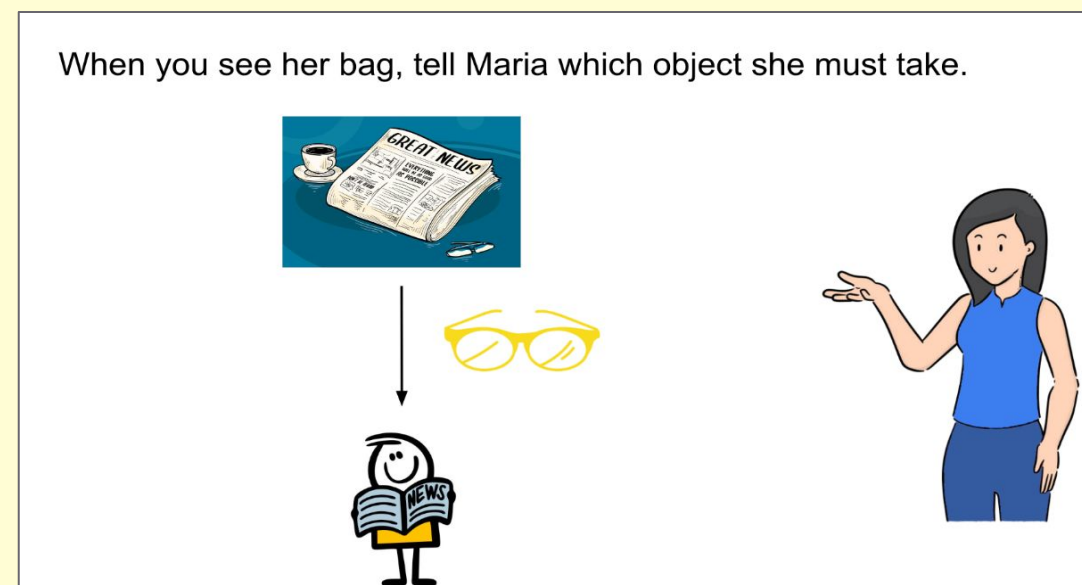
- **5 participants:** 2 Catalan and 3 German native speaking adults (3F, 2M)

Data Coding

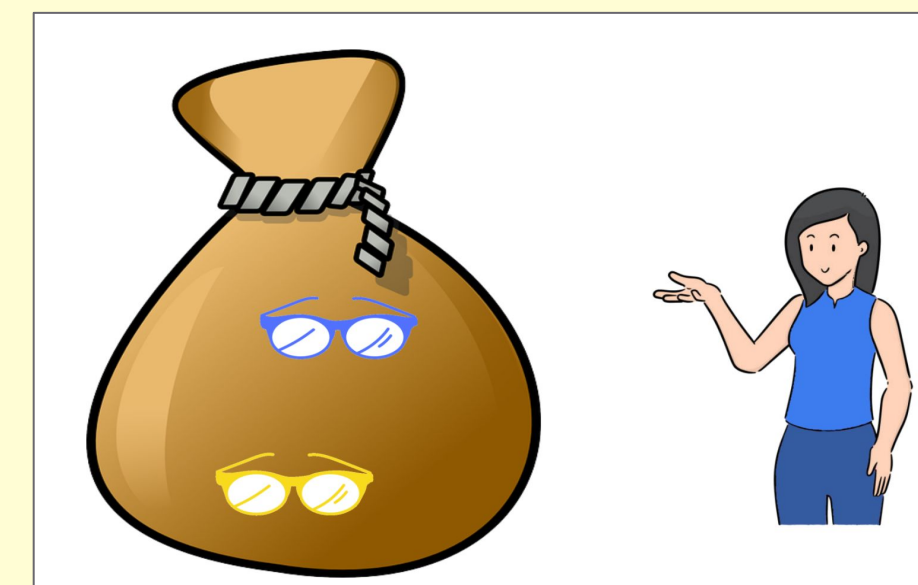
- **Focus conditions:** background < information < contrastive < corrective
- **Pitch accents** in Praat (Boersma & Weenink, 2022) following CatToBI (Prieto et al., 2015) and GToBI (Grice et al., 2005)
- **Eyebrow movements, head movements and hand gestures (strokes)** in ELAN according to M3D (Rohrer et al., 2023).
- **Prosodic and gestural prominence from 0 to 3** (DIMA, Kügler et al., 2019; degree of visual saliency of the gesture in relation to neighboring gestural movements)

Data Collection (Work in progress)

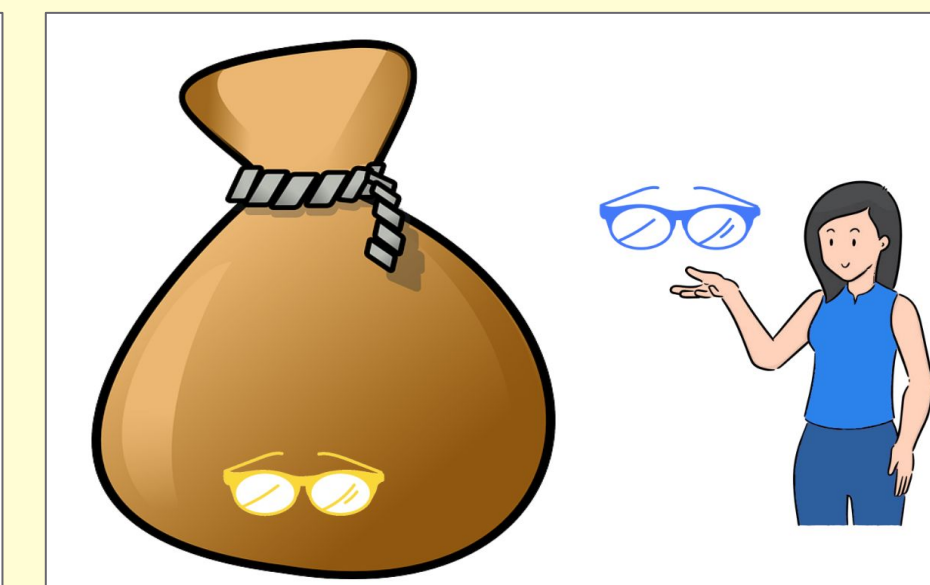
- **Focus elicitation task** adapted from Esteve-Gibert et al. (2021).
- Participants talk to a **language learner**. Their task is to **instruct her to take certain objects from a bag**.



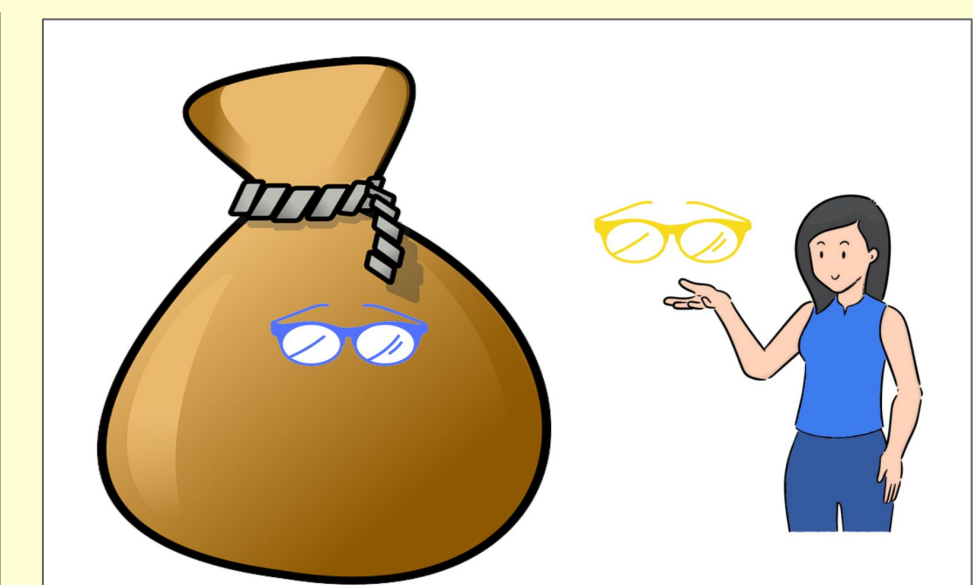
1. Context slide with target object



2. Object(s) prompted and instruction from the participant.
Contrastive focus: “Maria, take the [YELLOW]f glasses”



3. Maria confuses the object and the participant corrects her.
Corrective focus: “No, Maria, take the [YELLOW]f glasses!”



4. Maria takes the correct object.

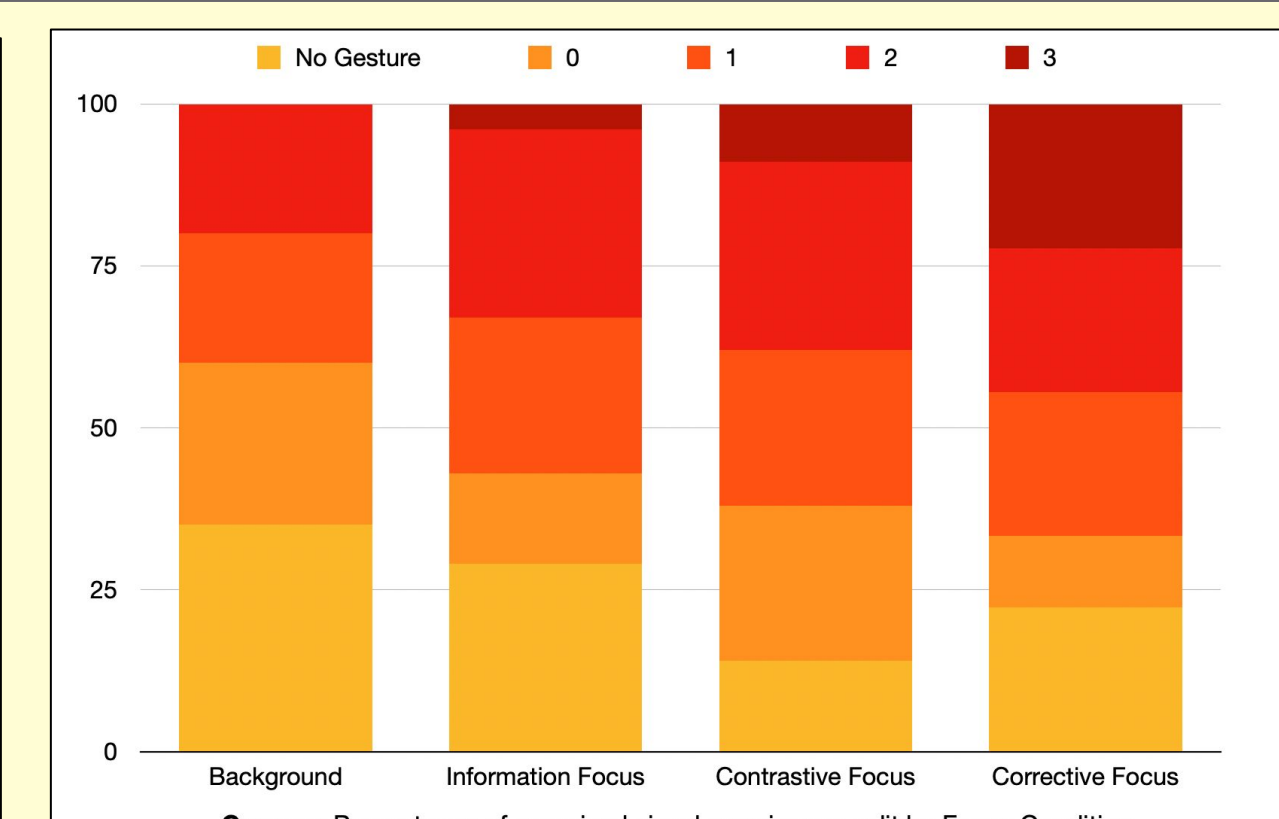
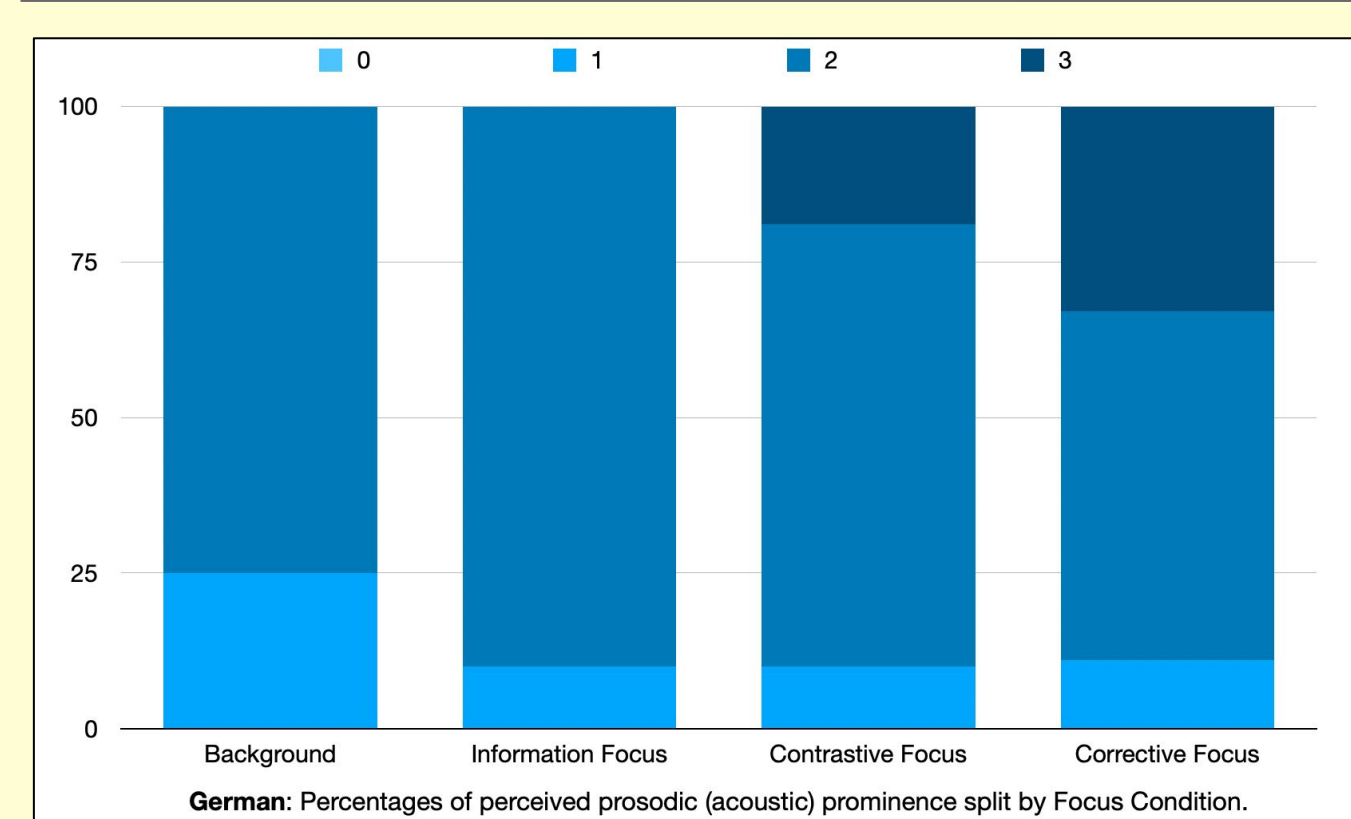
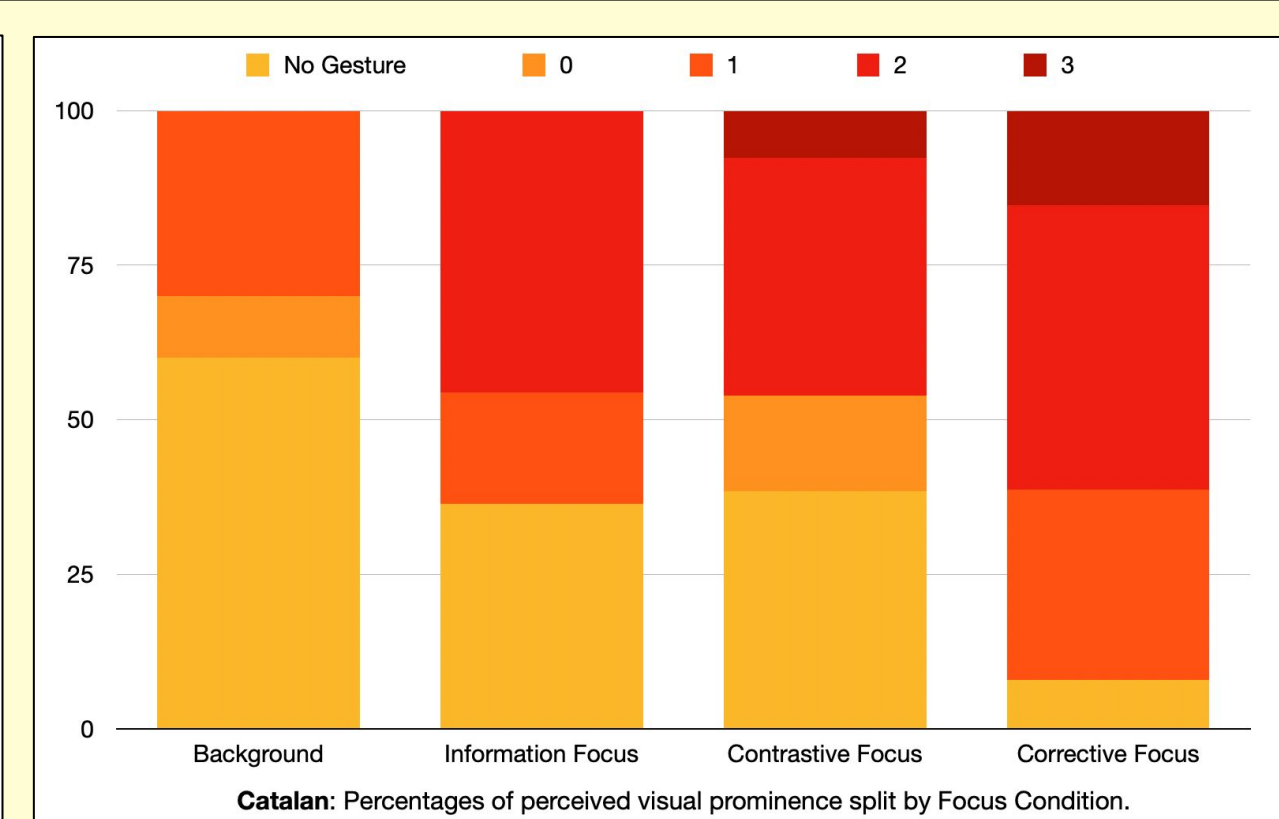
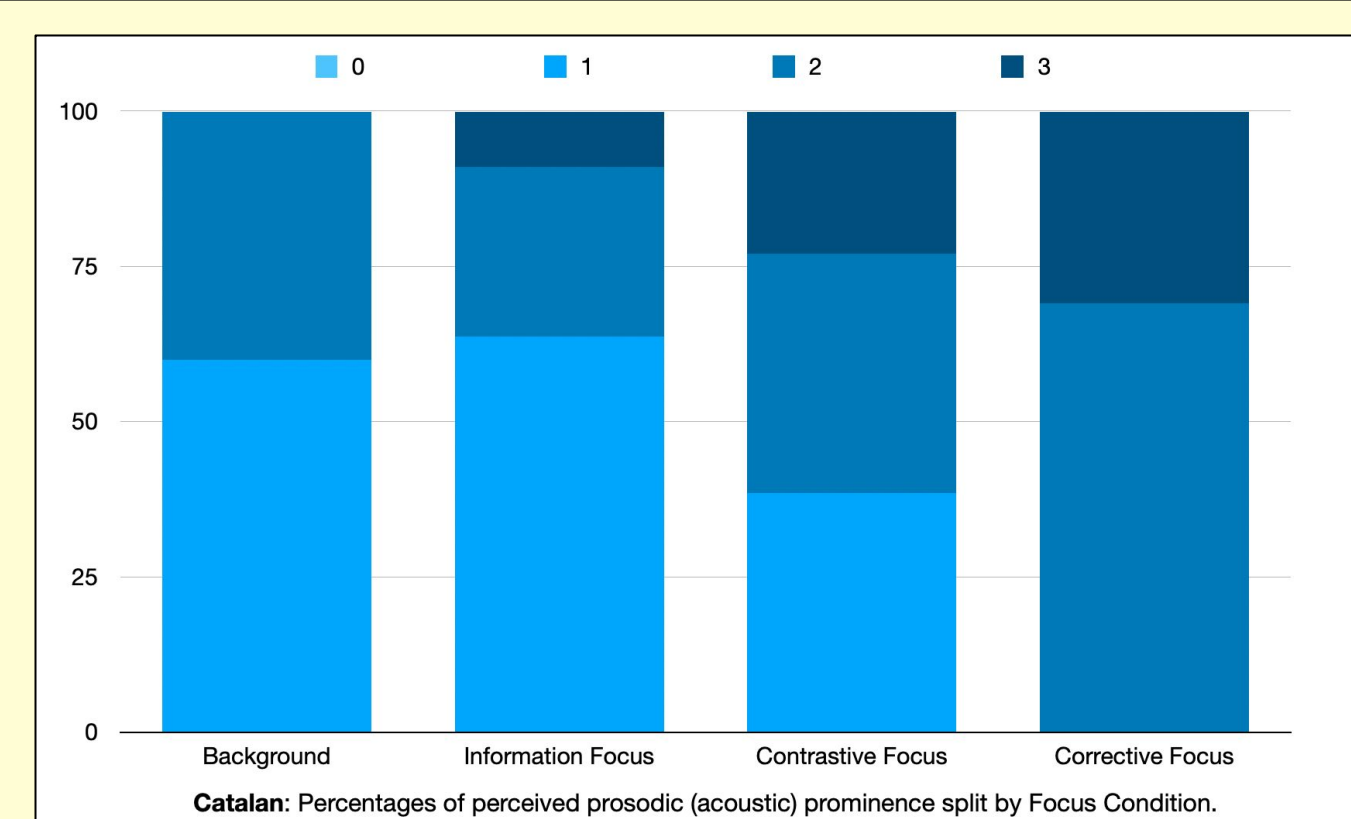
- **Total of 140 Noun Phrases** (object + color of the object).
- Target domain for **focus in the adjective**.

RESULTS

Preliminary Results

CUES		Pitch accents	Manual strokes	Head and/or eyebrow movements
CAT	Back	100%	30%	10%
	Info	100%	63,6%	27,3%
	Cont	100%	61,5%	15,4%
	Corr	100%	61,5%	84,6%
GER	Back	95%	15%	25%
	Info	95,2%	43%	43%
	Cont	95,2%	28,6%	43%
	Corr	100%	11%	28%

Percentages of cues produced by the participants on the adjectives (focused item) per condition, separated by language.



Discussion

- The method elicits **natural gestures** while enabling to control for focus
- **Number of gestures and pitch accents** per condition do **not represent perceptual prominence**.
- Perceived **prominence increases both visually and acoustically on the most pragmatically prominent constituents** (contrastive, corrective)
- **Gestural prominence:** kinematic cues used in gesture production (e.g., size, speed, movement patterns or “beat-like-ness” (Rohrer et al., 2023))
- **Acoustic prominence cues:** intensity and duration of the accented syllables, pitch accent height
- Next steps:
 - To finish data collection (40 participants/language)
 - Analysing pitch accent type
 - Gesture factors: referentiality, number of gestural cues at the same time
 - To receive insight about the main prominence patterns in the whole constituent (noun + adjective)

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