Audiovisual correlates of interogativity: a crosslinguistic study
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Introduction

• Auditory information normally allows for a clear marking of yes-no questions across languages. Crosslinguistic variation.
• Morphosyntactic marking
• Changes in the syntactic structure (e.g., Dutch)
• Use of specific intonational contours (e.g., Catalan)

Catalan can differentiate between a statement and a question mainly through the intonational contour used, and also by the optional use of “Que...?”

• By contrast, Dutch uses both intonation and syntactic movement for question marking.
• Whereas the gestural basis of epistemic-related questions (incredulity, surprise) have been investigated (Swerts & Krahmer 2005, Dijkstra et al. 2006, Prieto et al. 2010), Borràs-Coves & Prieto 2011, less is known about the gestural characteristics of information-seeking questions.

Methodology: production and perception

Data collection
15 Dutch speakers and 15 Catalan speakers were recorded while playing Guess Who using two different procedures specifically designed to elicit a series of statements and questions (Imtiaz Ahmad et al., 2011).
35 statements and 35 questions related to gender (e.g., Is it a man?) were randomly selected and utterance were labeled for prosody (using a shared AM analysis) and gesture (coding visual contact, eyebrow movements, and head movements).

Perception experiment
20 Dutch listeners and 20 Catalan listeners rated the selection of 70 stimuli in three different conditions (Auditory-Only, Visual-Only, AudioVisual) as being statements or questions.
Each group performed the task in their own L1. Catalan listeners’ data also ratie the Dutch materials.
35 utterances × 2 meanings (statement, question) × 3 conditions (AO, VO, AV) × 20 participants × 3 groups of participants = 12000 responses

Production patterns

Intonation contours
• Statements are frequently produced with a falling contour (1° 1%) in both Dutch and Catalan.
• Catalan questions are mainly produced with a low-rising contour (1° 1%). However, Dutch allows different contours in question marking.

Gesture: visual contact
• The presence of visual contact is the most frequent cue found in interrogative utterances in both languages.
• Head nod is also a reliable cue for statement marking.
• Less frequent visual cues found for question marking are eyebrow raising and head tilt.

General perception results

• As expected, auditory cues provide crucial information in question detection.
• When visual information is added to auditory information, an increase of accuracy in the identification of statements and questions occurs for Dutch and Catalan listeners analyzing their native languages.
• Catalan listeners are able to recognize the two meanings, with no remarkable differences between AO, VO and AV conditions.

Meaning (from production data): F(1, 12582) = 2242.528, p < .001
Meaning / Language: F(4, 100) = 226.932, p < .001
Meaning / Condition: F(1, 12582) = 877.886, p < .001
Meaning / Language / Condition: F(8, 12582) = 60.208, p < .001

Perception results (VO task)

• The same pattern of perception is found between the three groups of participants regarding the effect of visual contact for question marking, as predicted from the analysis of the production data.
• Although more infrquent than visual contact, head tilt (head inclination) appears to be a clear cue for conveying questions in both languages.
• Head nod appears to be the only cue that positively identify statement. However, the absence of the most reliable cue for questions (visual contact) can be a clear indicator of statements.

Visual Contact: F(1, 1038) = 260.721, p < .001
Eyebrow Raising: F(1, 2096) = 16.761, p < .001
Head Tilt: F(1, 1963) = 0.207, p = .649
Head Nod: F(1, 2054) = 3.870, p = .049

Conclusions

• Our data confirms that the distinction between broad focus statements and information-seeking questions can be identified on the basis of the auditory information alone, especially when analyzing one’s own native language. Also, we find that gestural information can be sufficient to detect question marking.
• The production results show that yes-no questions are characterized by the presence of visual contact in face-to-face interactions (gaze to interlocutor). The perception results show that visual contact is the most powerful cue in the statement/question distinction in both languages.
• Interestingly, Catalan participants rated VO Dutch materials in a similar fashion as Dutch native speakers (in contrast with the identifications of AO and AV materials). This suggests that gestural cues could be less language-specific than auditory ones.
• The linguistic and communicative functions of visual contact should be further investigated in terms of multimodal interactions in spontaneous face-to-face communication.

Goals

• To explore which supraaspectual cues (both auditory and gestural) are responsible for the conveyance of interrogativity.
• To test whether native and non-native participants can differentiate between broad focus statements and information-seeking questions when auditory information is not available.

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Selected references


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