Empathy Conditions ERP Responses to Interrogatives

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# Author note

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# Abstract

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# Introduction

Recent behavioral research in both monolingual Esteve-Gibert et al. (2020) and bilingual (Casillas et al., 2023) populations has investigated the role of pragmatic skills, such as empathy (Baron-Cohen & Wheelwright, 2004), in the processing of intonation; however, little research has explored the neurophysiological correlates that reveal *how* empathy modulates intonation processing (Aziz-Zadeh et al., 2010). The current study aims to address this gap by investigating Event-Related Potential (ERP) correlates of higher empathy L1 English L2 Spanish late bilinguals when explicitly deciding if a spoken Spanish sentence is a declarative or interrogative. By identifying the neurophysiological mechanisms underlying empathy’s role in L2 intonation processing, this study will contribute to the growing literature on the role of individual differences and pragmatic skills in L2 acquisition, as well as identify specific ERP components – such as the N400, P600, and Late Positive Component (LPC) – that are modulated by pragmatic skills during intonation processing.

## Empathy and Individual Differences

## N400, P600, and LPC

## Empathy and Language Processing

# Scraps

Empathy (Baron-Cohen & Wheelwright, 2004) has been found to modulate perception of intonation in the L1 (Esteve-Gibert et al., 2020; Orrico & D’imperio, 2020), as well as the L2 (Casillas et al., 2023), but the specific neurophysiological correlates that underlie empathy’s role in intonation processing remain uninvestigated. In the L1, higher empathy individuals have been found to show more granular interpretations of epistemic bias (Orrico & D’imperio, 2020) and to be more sensitive to intonational cues when developing a set of possible interpretations and selecting the most likely one (Esteve-Gibert et al., 2020). In the L2, higher empathy individuals have been found to respond more accurately, albeit slower, when determining if a spoken sentence is a declarative or interrogative (Casillas et al., 2023). The current research aims to contribute to the growing body of literature on the role of pragmatic skills and individual differences on L2 acquisition by investigating L1 English L2 Spanish late bilinguals by investigating Event-Related Potential (ERP) correlates of empathy in intonation processing. Specifically, continuing the line of research began by Casillas et al. (2023), are there

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