Research Proposal

# RESEARCH MOTIVATION

## casillas2023using

EN L1 ES L2 with higher EQ scores can distinguish between statements/questions more accurately than their peers with lower EQ scores, and there is an interaction with proficiency (lower proficiency individuals with higher EQ scores perform better than their peers with lower EQ scores, but this effect lessens as proficiency increases).

When only looking at yes-no interrogative for PR speaker (!H\* L%), only proficiency had significant effect. Empathy wasn't significant, neither was interaction between empathy/proficiency. This is true for all nuclear configurations except L\*L% (declarative). Might be due to small sample sizes (L\*L% had the largest sample size at 135, next largest being L\*H% [interrogative] at 109, and H+L\*L% [declarative] at 58, the rest have <50).

Maybe empathy only helps if learner has already been exposed to the material i.e. they can't be expected to be accurate about something they've never encountered. This is in line with the qualitative data we have from participants, that they didn't report experience with PR dialects.

(See end of doc for all nuclear configurations found in study, counts, and proportion correct response.)

Note: !H\*L% here is only paying attention to the surface realization. It could also be described as H+L\* L% (as Willis 2010 describes the same phonetic realization for info-seeking absolute declaratives in Dominican Spanish).

# RESEARCH QUESTIONS

## RESEARCH QUESTION 1

Do high-empathy folks acquire perceptual abilities (in this case, perceive !H\* L% as a question) faster than low-empathy folks when not explicitly taught/instructed on something?

(oriented towards cognitive linguistics)

## RESEARCH QUESTION 2

Do high-empathy and low-empathy folks benefit equally from explicit instruction?

(oriented towards second language teaching)

# BACKGROUND LITERATURE

## hulstijn2005theoretical

L1 acquisition relies on implicit learning; L2 acquisition relies on implicit and explicit learning.

* Implicit & explicit memory
  + Explicit: reference previous, specific event (priming)
  + Implicit: answer as quickly and accurately as possible
* Implicit & explicit knowledge
  + Awareness of regularities underlying information
  + Explicit knowledge similar to declarative/episodic knowledge
* Implicit & explicit learning
  + Explicit learning processes input with conscious intention to find regularities; implicit learning does not have that intention.
  + In pedagogical literature, usually defined as learning with or without grammar aid.
* Implicit & explicit instruction
  + Learners do or do not receive rules underlying input
* Inductive & Deductive learning
  + Deductive = rules before examples
  + Inductive = examples before rules
  + Obligatorily explicit since rules are provided in both instances
* Incidental & intentional learning
  + Intentional = forewarned that they will be tested
  + Incidental = not forewarned, not limited to experimental situations, unintentional pickup of information

Three problematizing factors in implicit & explicit learning:

1. The regularity & complexity of system underlying data
2. Frequency & salience with which any underlying regularity of data is represented in input to which learners are exposed
3. Learners’ individual differences in knowledge, skills, and information processing styles, which might be beneficial or detrimental to discovering underlying regularities 🡨 What I’m interested in for this study!

## esteve2020empathy

Mariapaola’s paper. Higher-empathy individuals make more use of intonation to interpret ambiguous words.

## mennen2015beyond

L2 Intonation Learning theory (LILt)

L1 and L2 intonational differences categorized by four dimensions (with comparisons between H\* L% in Spanish & English):

1. Inventory & distribution of categorical phonological elements (systemic)
   1. Both English and PR Spanish have H\* L%
2. Phonetic implementation of categorical elements (realizational)
   1. Similar H\* on stressed syllable, fall throughout vowel to end of utterance and low boundary L%.
3. Functionality of categorical elements/tunes (semantic)
   1. H\*L% used for declaratives in English, but used for information-seeking absolute interrogatives in PR Spanish.
4. Frequency of use of categorical elements (frequency)
   1. H\*L% is frequent in both English and PR Spanish for distinct utterance types.

From LILt’s analysis, we can predict that English speakers will have trouble with PR H\*L%, which is what we saw borne out in casillas2023using.

## melchers2017oxtr

121 individuals measured for EQ (Interpersonal Reactivity Index, IRI [Davis, 1983]) and realized an implicit detail learning paradigm (IDLP).

Watched five short TV-format clips with diverse topic, focus on “a lot of details that might be implicitly recognized” and depicting social interactions. 10 wh- questions asked for each scene. Half were open format, half were multiple choice. Divided questions into three categories: all, social detail, and non-social detail.

High-empathy individuals were found to be more accurate: “we found a significant medium size positive correlation between the IDLP performance and the EQ as well as smaller size significant correlations between the IRI subscales measuring affective and cognitive components of empathy. At the same time, we observed negative correlations between the AQ and implicit detail learning.”

No differences were found between social-detail and non-social-detail questions.

NOTE: The study was focusing on some gene/allele polymorphism. They didn’t find a link between the polymorphism and empathy, suggested that the questionnaire measures a broader/different phenotype. Part of the data was explained by the polymorphism, though.

# HYPOTHESES

RQ1: Expect high-empathy folk to acquire perception of !H\* L% quicker than low-empathy folk with implicit exposure. This is because high-empathy and low-empathy folk do not likely differ in how they're exposed to the language, but instead differ in what they pay attention to. Since I'm proposing that learners in original study never heard, or heard extremely infrequently, !H\* L% as a question, it is not that they didn't pay attention, but that they never had the opportunity to.

RQ2: I do not expect there to be a difference here between high- and low-empathy folks when exposed to explicit learning. This is because there is more explicit instruction on what to pay attention to, or at least cues them to pay attention to something.

# METHODOLOGY

H\*L% yes-no questions from PR Spanish. Dominican as well, since they produce H\*L%?

Record another set of audios from a Puerto Rican speaker (or any speaker who produces !H\* L% for absolute interrogatives?).

Two treatment groups:

1) Implicit training: Listens to a scripted video/audio of two Puerto Rican speakers talking to each other, clearly modeling questions and using the target !H\* L% nuclear configuration.

2) Explicit training: Listens to recorded sentences and determines if it's a statement or question. Learner receives feedback and listens to audio once more if they got it wrong.

# STATISTICS

Logistic regression.

is\_correct ~ training\_type \* empathy \* proficiency

# REMAINING QUESTIONS

* When referring to !H\*L%, does it make sense to just refer to it as a final fall in the paper, without referencing ToBI?
  + I think so, because the “issue” is that it’s a fall for an info-seeking yes-no question (i.e. the boundary tone), not the whole configuration. This is predicted to be difficult for L1 English, since English doesn’t mark this sentence type with L%. Not referencing the specific ToBI label generalizes results.
* Do I need to decide a specific direction for this?
  + E.g. cog ling vs second lang acquisition vs language pedagogy

# Extra

Nuclear configurations, accuracy, and count from casillas2023using as table and graphic.

|nuclear\_configuration |is\_question | prop\_correct| count\_configs|

|:---------------------|:-----------|------------:|-------------:|

|!H\*\_L |1 | 0.2078804| 27|

|H+L\*\_H |0 | 0.8901099| 3|

|H+L\*\_H |1 | 0.5912240| 14|

|H+L\*\_L |0 | 0.9534599| 58|

|H+L\*\_L |1 | 0.4646154| 23|

|L\*\_H |0 | 0.8285714| 6|

|L\*\_H |1 | 0.8247256| 109|

|L\*\_HL |1 | 0.5945946| 11|

|L\*\_L |0 | 0.9434954| 135|

|L\*\_L |1 | 0.6093535| 25|

|L\*\_LH |0 | 0.8500000| 1|

|L\*\_LH |1 | 0.7500000| 2|

|L\*\_M |0 | 0.9333333| 1|

|L+H\*\_H |0 | 0.7357143| 5|

|L+H\*\_H |1 | 0.8034557| 17|

|L+H\*\_HL |1 | 0.6184739| 10|

|L+H\*\_L |0 | 0.9250218| 42|

|L+H\*\_L |1 | 0.6229508| 18|

|L+H\*\_M |0 | 0.8679245| 5|

A graph of blue and pink bars

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