

Phonetics experiments (I): Research questions and experiment design

Gallagher & Whang's (2014) Quechua ejectives paper is an example of a phonetics research project that involves **acoustic analysis** of **phonetic production data**.

We will discuss the research questions and experiment design in class. These discussion questions can help orient you toward key ideas in the paper.

- (1) Measurable research questions / specific testable hypotheses: What are they?
 - These are easy to find in this paper — G&W lay them out explicitly
- (2) Big-picture research question: Why should a non-Quechua specialist care about this paper?
 - This takes a little more work to understand and involves some concepts from phonology as well as phonetics (we will discuss in class)
 - (a) Hint: Some key ideas behind the big-picture research question
 - phonetic precursors (Gallagher & Whang 2014: 133)
 - articulatorily challenging (G&W: 133)
 - co-occurrence restriction on ejectives (G&W: 135)
 - OCP (G&W: 135)
 - threshold of articulatory complexity (G&W: 136)
 - temporal coordination of gestures (G&W: 136)
 - (b) When we first encounter “RQ #3” (G&W: 137), is it obvious how this set of specific testable hypotheses is related to the big-picture RQs? Some relevant terms:
 - lenition
 - hyperarticulation
 - (c) G&W express some reservations in the Discussion section (sec 3) about how directly their results address their big-picture RQ; can you identify their concerns?
- (3) Materials: Stimuli and procedures
 - (a) How many participants? What were they like?
 - (b) What were the stimuli like? How many were there?
 - What were the different experiment conditions? (What factors were varied?)
 - What other factors were controlled for? Were there trade-offs that had to be made?
 - Were there any distractor items? (What are these for?)
 - (c) How were the stimuli presented?
 - What were some of the reasons why this presentation method was chosen? (What did the experimenters categorically avoid doing?)
 - (d) What recording equipment was used, with what settings?
- (4) Measurement criteria
 - (a) What binary coding was used to classify all ejective tokens? (Comments?)
 - (b) What quantitative properties were measured? What landmarks or procedures were used? Were there any problems or special situations here?