

- **Research questions**
- **Experiment design**

Background:

- Gallagher & Whang (2014) [in class]

0. Today's objectives

After today's class, you should be able to:

- Articulate a **big-picture research question** and a **measurable research question**, and know how to **distinguish** the two
- Make **connections** between a measurable research question and the **design** of an experiment presented in a research article
- **Evaluate** a research design, making note of potential **confounds** and **methodological difficulties**

1. Background: Ejectives

- Can anyone define or produce an **ejective** (glottalic ejective oral stop)?

1. Background: Ejectives

- Can anyone define or produce an **ejective** (glottalic ejective oral stop)?
 - Form simultaneous oral and glottal closure
 - Raise larynx (what happens to pressure between closures?)
 - Release oral closure
 - Release glottal closure
- Quechua ejectives (V&C) in Praat: [k' q']

2. Research questions

- **Big-picture research question:** “Why do we care?”
- **Measurable research question:**
 - Explicit
 - Quantitative (numerical)
 - “Is X bigger than Y?”
 - “Does X increase as Y increases?”

2. Research questions

- Can we find the **measurable RQs** in the article?
 - Not all authors are this clear!
 - Sometimes we have to look for a **hypothesis** and reframe it as a measurable RQ
- **Where**, in general, can we look for information about big-picture research questions in an article?
 - For this article, the BPRQs are related to the phonology/phonetics interface

3. Experiment design

Once we have a measurable RQ, how can we gather the right data to measure it?

- Make sure the **materials** are well structured
 - There should be a **comparison**
 - The comparison should allow us to **test the RQ**
- Beware of **confounds** and complications
 - Equal numbers of items per **condition**?
 - Possible **confounds** (other factors that might affect what we're interested in) **avoided** or **balanced**?

3. Experiment design

- **Where** in the article can we find information about the experiment design?
 - How does it **relate** to the measurable RQ?
 - How are the items structured? What are the **conditions**?
 - How are possible **confounds** avoided or mitigated?

3. Experiment design

- What was their methodology for **measuring** and **classifying** the stops in their recordings?
 - What **quantities** were measured?
 - What measurement **landmarks** were used?
 - What **classification** criteria were used?