

## Today's topics:

- **“Basic” allophones and URs**
- **Morphological analysis**

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*Background preparation:*

- *Finnish data set*
- *Farsi data set (Zsiga 2010)*

# 0. Today's key points

- Check-in: Determining contrastive/predictable distribution
- Finding and stating environments
- Underlying representations (URs)
  - Choosing a UR when there are multiple allophones
  - Implications of UR choice for modeling phonological processes
- Segmenting morphemes
- Alternating morphemes: introduction

# 1. Contrastive and predictable distribution

- Summary of some key issues in distribution:
  - How do we **determine** whether two speech sounds...
    - belong to two **different phonemes**?
    - are two **allophones of the same phoneme**?
  - Describing and characterizing phonological **environments**:
    - How much **detail** is enough vs. too much?
    - What information matters, and **why**?

# 1. Contrastive and predictable distribution

- Summary of some key issues in distribution:
  - Stating **phonological environments**:
    - Enough detail to **uniquely identify** or **distinguish** the relevant environments
    - No more detail than is necessary — this focuses our attention on what the grammar really **has to be sensitive to**
    - May depend on what environmental factors are most **insightful** — can have implications for choice of UR

## 2. Analysis of allophone distribution

- How do we conceive, in a grammar model, of a phoneme that has **multiple allophones**?
  - What two options does Zsiga discuss? (Others?)
  - Why is it attractive to have a “basic” allophone? What are the hidden implications?

## 2. Analysis of allophone distribution

- How do we conceive, in a grammar model, of a phoneme that has **multiple allophones**?
  - What two options does Zsiga discuss? (Others?)
  - Why is it attractive to have a “basic” allophone? What are the hidden implications?
- Try stating an analysis of allophone distribution for:
  - [Tohono O'odham](#) (follow-up from last class)
  - [Farsi](#) (follow-up from today's SQs)
    - What are the URs?
    - What processes apply (what does the grammar have to “do”)?

## 2. Analysis of allophone distribution

- Tohono O'odham (from last time)
  - What are the **options** for stating the **environments** for the allophones?
  - Are some of the approaches **more appealing**?
    - What are the **implications** for our **analysis** (=UR choice + phonological process(es))?

## 2. Analysis of allophone distribution

- Tohono O'odham [ d̥ʒ ], [ tʃ ], [ t̥ ], [ d̥ ]
  - What are the *facts* about **distribution**?
    - Are there options for *stating* environments?
  - Which allophones belong to the **same** phoneme?
    - How do we “pair them up” and why?
  - What are the options for **URs**?
    - Is there a clear **basic allophone**?  
What other UR could we consider?
    - Implications for **phonological processes**?



## 2. Analysis of allophone distribution

- If we propose that [ dʒ ] and [ d̥ ] are allophones of the same phoneme, which is a *better* “basic allophone”? **Why?**
- How are these as potential arguments?
  - “It matters which one appears more often in the data set”
  - “It matters which one appears in a longer list of environments”

## 2. Analysis of allophone distribution

- If we propose that [ dʒ ] and [ d̥ ] are allophones of the same phoneme, which is a *better* “basic allophone”? **Why?**
- A more insightful approach...
  - It matters which one appears in an **environment** that is easy to **characterize**
    - Why?
  - Note that “easy to characterize” depends on the entities that exist in the phonological model

## 2. Analysis of allophone distribution

- Farsi (from SQs)
  - What are the **options** for stating the **environments** for the allophones?
  - Are some of the approaches **more appealing**?
    - What are the **implications** for our **analysis** (=UR choice + phonological process(es))?

## 2. Analysis of allophone distribution

- Farsi

- **Options** for stating **environments**?

[ r ]      #\_      or      #\_V

[ r̥ ]      \_\_#      or      V\_\_#

[ r ]      V\_\_V

[ ɹ ]      V\_\_C      or      V\_\_C#      ...or?

- Which are **more appealing**?

- What are the **implications** for our **analysis** (=UR choice + phonological process(es))?

## 3. Morphological analysis

- What is a **morpheme**?

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  - A systematic sound-meaning correspondence
  - Cannot be further divided into meaningful units
- How do we identify the morphemes in a data set?  
Data set: [Spanish nouns](#)

### 3. Morphological analysis

- What is a **morpheme**?
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Data set: [Spanish nouns](#)

- Compare forms that **share a meaning** to see what **sound** structures are also **shared**
- Compare forms that **differ in meaning** to see what **sound** structures also **differ**

### 3. Morphological analysis

- Data set: Turkish suffixes
  - What are the morphemes in this data set?
  - How many **distinct suffixes** are in this data set?



## 4. Alternating morphemes

- Sometimes, a single morpheme has multiple surface forms: the morpheme **alternates**
- When the morpheme's **phonological environment** changes, different phonological processes apply
  - Example: English plural suffix: [-s] [-z] [-ɪz]
- Such morpheme alternations are another source of **evidence** for a **phonological grammar**

## 4. Alternating morphemes

- When we see an alternating morpheme, we want to propose a **single underlying representation (UR)**
  - Then we propose a means for the grammar to generate the other surface forms as needed
- How do we **decide** what UR to propose?
  - Consider the **alternative analyses** (what the grammar has to do under different UR assumptions)
  - Is one more **successful** than another?  
More **appealing**?

## 5. For next time

- Reading: Odden excerpts
- Data sets: [Turkish suffixes](#)  
[Javanese](#)
  - Which morphemes in these data sets alternate?
  - How can we state the environments of the surface forms of the alternating morphemes?
  - How should we decide what URs to propose for the alternating morphemes?