Today's topics:

- **Model-building in linguistics**
- **Feature models of segmental representation**

Background preparation:

- Data sets - G&J 1998 collection
- Zsiga (2013, Ch 12)

0. Today's objectives

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

- Explain the reasons for defining **formal models** in phonology (linguistics, science)

- Use the **Zsiga (2013) feature model** to represent segments and segment classes, and understand its predictions, conventions, notation, and proposals

- Relate **Mielke's (2005) discussion of phonetically ambiguous and phonologically ambivalent segments** to feature models, segment classes, and debates about "Universal Grammar"

1. Model-building in linguistics

- What is a model?

- How are models used in research?

1. Model-building in linguistics

- Handout - <u>Model-building in scientific research</u>

  - A model is an abstract explanatory device that captures structure in the data

  - In building a model, key goals are to
    - **describe**   • **predict**   • **explain**
    the phenomena of interest

  - See handout for additional discussion

1. Model-building in linguistics

- Is there a difference between these statements?

  - *[m] is voiced.*

  - *[m] is [+voice].*

- Is there a difference between these statements?

  - *[m] is voiced*. → *fact about the **world***

  - *[m] is [+voice]*. → *element in our **model***

1. Model-building in linguistics

- Is there a difference between these statements?

  - *[m] is voiced. → fact about the world*

    This is a **descriptive generalization**
    - It states what we've observed in the world, highlighting factors we think are important

  - *[m] is [+voice]. → element in our model*

    This is an **analysis**
    - It specifies how we apply the tools of our model to represent the generalization

2. A feature model — Zsiga (2013: Ch 12)

- What facts about the world is this model intended to describe, predict, and explain?

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- What facts about the world is this model intended to describe, predict, and explain?

  - Speaker/language behavior concerning

    - segment-class behavior

    - segmental contrasts

- Note: We will use the feature model that Zsiga presents as a **reference point** for feature analysis

  - This represents a relatively mainstream position after decades of work in feature theory

  - Be aware of points of controversy

2. A feature model — Zsiga (2013: Ch 12)

- Overview of the model that Zsiga (2013) presents

    - See <u>features list handout</u>

    - How do **binary** vs. **privative** features differ?

Data set(s) — <u>Distinctive features and segment classes</u>

- How well does the Zsiga feature model do?

Major class and manner features

- Here are some traditional descriptive terms for the natural classes that are defined by various combinations of the major class features: **consonant**, **obstruent**, **sonorant**, **liquid**, **nasal**. (Another useful term is **vocoid**, which means any [–cons] segment, i.e., vowel or glide.)

  - See if you can use the major class an manner features to specify and distinguish each class

Place features

- What are the **major place features**?

- What are the **subsidiary place features**, and what is **special** about some of them?

- How can Zsiga's place features **distinguish** all the necessary places of articulation?

- Do **vowels** have place features? Do consonants have height, backness, or rounding features?

  - What predictions does this make?

3. How universal are features?

- What points of controversy does Zsiga (2013) identify with respect to the feature **[±continuant]**?

- What difficulties does Zsiga (2013) identify with respect to **consonant/vowel interactions**?

- What position does Wrenn (2025) take with respect to **[±anterior]**?

- Linguists have proposed that **signed languages** such as ASL have phonological structure, including features: Discuss?

3. How universal are features?

- [Mielke (2005)](#) — Some key points (in class)

    - The proposal that features are "emergent" (learned from data)

    - The very useful distinction between
        - **Phonologically active** class
        - **Phonetically natural** class
        - **Featurally natural** class ['**defined**' better?]

Mielke, Jeff. 2005. Ambivalence and ambiguity in laterals and nasals. *Phonology* 22(2):169-203. doi:10.1017/S0952675705000539

3. How universal are features?

- We will use Zsiga's feature model as our default reference model, in general

    - We may need to **override** default specifications for a segment class when the **data** requires this

    - Also: Watch out for data that supports alternatives to Zsiga's proposed binary vs. unary feature classification