Today's topics:

- **Markedness constraints**
- **Inductive bias vs. channel bias**

Background preparation:

- Zec (2007), McCarthy (2007) markedness constraints

0. Today's key points

- Considerations in formalizing markedness constraints
- The Too-Many-Solutions problem
- Inductive bias vs. channel bias as a source of typological patterns / phonetics-in-phonology

1. Thinking rigorously about constraints

- "What are the constraints in the grammar?"
  - This question is a big-picture, long-term goal in OT (and other constraint-based frameworks)

- One widely accepted view:

  All constraints are either **faithfulness** constraints or **markedness** constraints
  - What is an example of a constraint we would **not** expect to see, if this is true?

1. Thinking rigorously about constraints

- What are the possible faithfulness constraints?
  - What are the ways that outputs can differ from inputs, that are avoided by some languages?
  - Most widely accepted view: Correspondence Theory (discussed last week; McCarthy & Prince)
  - Some alternatives
    - Colo(u)red Containment (Oostendorp)
    - *MAP ("star-map") constraints (Zuraw)
- Thinking about markedness constraints is a lot more complex

2. Formalizing markedness constraints

- Thought exercise, level 1:
  - Suppose we know that some languages have voiced and voiceless obstruents in surface forms, and others have only voiceless obstruents
  - How can we model this typological pattern in OT? (Assume Correspondence Theory for faithfulness)

2. Formalizing markedness constraints

- We need a constraint like this:

  *VOIOBST Assign one * for every segment that is [–son, +voi]

- What faithfulness constraints conflict with this?
- What ranking is needed for each language pattern discussed above?
- How do we rule out a language with **only** voiced obstruents?

2. Formalizing markedness constraints

- Thought exercise, level 2:
  - Some languages allow voiced and voiceless obstruents in onsets, but only voiceless obstruents in codas
  - How can we model this **(positional) neutralization** pattern in OT?

2. Formalizing markedness constraints

- Do we put special requirements on codas?

  *VOIOBST[Cod] Assign one * for every segment that is [–son, +voi] in a syllable coda

- Do we put special protection on onsets?

  IDENT[±voi][Ons] Assign one * for every output segment in an onset whose [±voi] value differs from its input correspondent

2. Formalizing markedness constraints

- Thought exercise, level 3:
  - Consider a language that prefers to have a syllable nucleus be a vowel, but will use a liquid if no vowel is available, and will use a nasal if no liquid is available
  - How can we model this **implicational hierarchy** pattern in OT?

2. Formalizing markedness constraints

- Thought exercise, level 3:
  - What constraints should be propose?
  - How can we make them predict the correct typology?

2. Formalizing markedness constraints

- What we've observed:
  - Some logically possible M constraints seem not to exist
  - Only some cases of positional constraints seem to exist
  - Some M constraints seem to be ranked in universal hierarchies
- How can our model account for these points?

3. Inductive bias vs. channel bias

- Terms from Moreton (2008) [preprint]
  - What makes some constraints universally
    - missing?
    - low-ranking?
- Core basics: Phonetic and typological justification for M constraints
- See discussion of the Too-Many-Solutions problem from Th Mar 21
- See handout on grounded M constraints