Reading guide: Hayes (1999)

Hayes, Bruce. 1999. Phonetically driven phonology: The role of Optimality Theory and inductive grounding. In Michael Darnell et al., eds., *Functionalism and Formalism in Linguistics, vol. 1: General Papers.* Amsterdam: Benjamins, 243-85. [Pre-print version: ROA-160 (1996).]

Background

After reading Pater (1999), we considered the question of how to make the constraint inventory contain phonetically grounded constraints. Hayes (1999) presents one potential answer to this question, the implications of which are interesting to consider. Hayes also discusses other aspects of the phonetics-phonology interface and the question of how abstract vs. concrete phonological strctures and representations should be.

NOTE: While section 18 is interesting and fun to read, we probably won't discuss it in class. Also, let's postpone discussing section 15 until later, maybe in conjunction with the Kirchner and Zhang papers.

Questions to keep in mind while reading

Sections 1-6: The background to Hayes' proposal

- What does Hayes mean when he uses the term *functionalism*?
- Hayes says that "a research result in phonetics is not [the] same as a phonological constraint" (p 5). What does he mean by this statement? How does it relate to the "landscape of phonetic difficulty" diagram given in (2)?

Sections 7-10: The inductive-grounding model

- What does Hayes mean by the terms *inductive* and *grounding*?
- What is the general goal of the inductive-grounding model of markedness constraints?
- Understanding some technical aspects of the model:
  - What determines the set of candidate constraints?
  - How is constraint effectiveness measured? Why is effectiveness by itself not a good way to determine which constraints are grounded?
  - What determines whether two constraints are *neighbors,* and why is this important?
- Does the definition of grounding in (12) achieve what Hayes intends it to achieve? How does it work (or not)?
- In section 10, where does Hayes get his numerical values and his constraints from? What simplifications are being made? Are they justifiable? To what extent are the conclusions of Section 10 useful? Generalizable to other cases?

Sections 11-14, 16-17: Broader implications of the proposal, and connections to other topics

- If all learners induce all phonetically grounded constraints, what explains the fact that some languages show the effects of certain constraints and other languages don't?

- To what extent do the acquisition facts reported in section 12 support the inductive grounding model?

Some points for further thought and discussion

- If all markedness constraints are actually constructed by the learner during the process of acquisition, is it still meaningful to think of a universal constraint set? What conditions would cause two learners to induce different inventories of (markedness) constraints? (This question is somewhat related to points raised in sections 13 and 14 of the paper.)

- Hayes' model is one way of ensuring that (some of?) the constraints in CON are phonetically grounded. Are there other potential reasons why CON might contain (only/primarily) phonetically grounded constraints?

- Hayes states (p 21): "It is interesting that some of the constraints ... do not record extremely high effectiveness scores, but are nevertheless fairly well attested. ... This suggests, as before, that formal symmetry, and not just phonetic naturalness, plays a role in constraint creation." Comments? What kind of link do you think we can make between formal symmetry and well-attested constraints?

- *If we have time:* What are some of the issues and questions that come up when models of grammar learning in OT are compared with child language data?