

Reading guide: Zhang (2004)

Zhang, Jie. 2004. The role of contrast-specific and language-specific phonetics in contour tone distribution. In Bruce Hayes, Robert Kirchner, and Donca Steriade, eds., *Phonetically Based Phonology*. Cambridge: Cambridge University Press, 157-190.

Background

Zhang's model of the phonology-phonetics interface in OT is yet again different from what we've seen previously, although it is to some extent based on work of Kirchner's that was not explicitly covered in Kirchner (2000). As we did with Kirchner (2000), think about whether Zhang's proposal here is compatible with the model developed in Hayes (1999) and, where they differ, how to choose between them.

Questions to keep in mind while reading

Sections 1-4: Arguments in favor of the direct-phonetics approach

- Here is a general question to keep in mind throughout this whole portion of the paper: Which of Zhang's arguments support *only* a model in which phonology is directly determined by phonetics, and which are also compatible with a Hayes-type system in which formally stated constraints are more indirectly restricted/ranked/etc. on the basis of phonetic factors?
- What are the phonetic connections proposed by Zhang between tone and sonority, and tone and duration?
- How is C_{CONTOUR} defined formally, and what property does it measure? Can you think of other phonological or phonetic factors that might affect C_{CONTOUR} other than those mentioned by Zhang?
- Zhang contrasts a *direct approach* and a *structure-only approach* to the phonology-phonetics (or constraint-phonetics) interface; are there other possibilities?
- What is the crucial difference in the factorial typologies predicted by the direct approach and the structure-only approach as described by Zhang in section 2.4? What difference in the two models is responsible for this difference in the factorial typologies?
- Does Zhang's system overgenerate? What is the significance of the factors mentioned in footnote 5?
- The C_{CONTOUR} factor a is important in the discussion of Navajo vs. Thai/Cantonese in section 4. Can the a value for a language be independently predicted?

Section 5: The formal model

- Work through the technical details of the model. What do the constraint definitions mean? How are the constraints affected by phonetic factors? What kind of factorial typology does Zhang's system produce?
- Given the assumptions of *canonicity* and *normalization*, are we justified in calling this a direct-phonetics model of phonological constraints? How direct is the phonetic influence?

Section 6: Competing approaches

- For those of you who are familiar with moraic theory, which is one of the "symbolic" approaches that Zhang is criticizing as inadequate: Can the language patterns discussed in section 4 be stated in moraic-theory terms? What are the relative advantages of a moraic account and Zhang's approach?
- Can any of the objections raised by Zhang for the more abstract, symbolic approaches summarized in section 6 be countered if Hayes-type phonetic influence is added to the system?

Some points for further thought and discussion

- In (4b) on p. 4, Zhang makes the following statement. How does this relate to the position laid out in Hayes (1999)?

"Within a language, multiple factors can together induce a greater C_{CONTOUR} value, and their contour tone licensing ability corresponds to the degree of C_{CONTOUR} increase."

- One of the arguments that Hayes (1999) made in favor of maintaining the distinction between phonetics and phonology that emphasized most strongly was the fact that phonological patterns show formal symmetry. Does Zhang's system maintain the ability to predict formally symmetrical patterns? Does it allow for asymmetrical patterns as well? Do the language patterns discussed here (see especially sections 3 and 4) provide evidence for or against the importance of formal symmetry in phonology?
- When we talked about $*NC_{\text{C}}$, we decided that there might be reasons for the existence of a $*NC_{\text{(voiced)}}$ also (and therefore more complicated typological predictions). Zhang does mention two languages in his survey with only contour tones and no level tones. Is there a phonetically grounded reason to have a constraint *requiring* contour tones?