

## The division of labor between segment-internal structure and violable constraints

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Until the advent of Optimality Theory (Prince and Smolensky 1993), the major questions in phonology dealt with the nature of phonological features, structures, rules and constraints, and the relationships among these. With the introduction of OT and its explicit rejection of phonological and morpho-phonological rules, the focus shifted almost exclusively to one of constraint interactions (often not even questioning the makeup of the constraints themselves). Although viewing sound patterns through the lens of constraint-interaction has led to many advances in the field of phonology, it has also distracted us from a number of issues that are independent of the rules-versus-constraints debate. For example, the motivations behind feature theory and feature geometry, and the problems they were developed to address, are just as vital and unresolved today as they were a decade ago. However, not enough work is being done in these areas, and most OT analyses simply presuppose an unmotivated, convenient and usually “fully-specified” SPE-like bundle of binary features. This is a problem that needs to be addressed.

A second problem with the current state of affairs has to do with some of the core premises of OT itself. OT has received much criticism over the past decade from a variety of camps who take issue with one or more of its components, i.e. the input, GEN, the candidate set, CON and the output. This is partially because the simplicity of the classic OT model masks a variety of complications lying just below the surface. We have to ask ourselves how valid are the current criticisms and how does/should a constraint-based computational system fit into the phonological grammar?

There are two main goals of this talk. The first is conceptual - I will review the basic OT architecture, discuss some of the difficulties/uncertainties that arise in trying to use it to model phonology, and suggest answers to some of the criticisms. The second is practical - I will show that integrating an economical and a highly restrictive model of segment-internal structure into OT is both possible and has a range of advantages.

Some specifics:

I suggest that the world of “phonology” is both broader and narrower than is usually discussed and that it is partially a lack of explicitly stated assumptions that is to blame for some of current confusion in the OT literature. To help clarify things (or perhaps only muddy them further?) I will present a brief overview of some issues with OT/phonology and make explicit suggestions for developing a more adequate OT model of the phonology. These include: 1) the phonological grammar is *fairly* substance-free (Hale and Reiss 2000), 2) Richness-of-the-Base is important (vital?) to any theory of *phonological* competence, while Lexicon Optimization is irrelevant, and 3) the constraint set is not universal - there are a limited number of universal constraint primitives that are combined on a language-particular basis (given overt, positive evidence) to form more complex constraints. From a feature co-occurrence perspective, this last point entails not only building language-particular co-occurrence constraints, but I will suggest it also results in what is known as categorical perception. Finally, I will claim that GEN produces only universally available linguistic structures (e.g. relationships among segment-internal elements) and the role of the constraint ranking is to determine which of those structures occurs in a given context in a specific language.