

Factorial typology: Cross-linguistic predictions in OT

Because the OT framework includes the proposal that **constraints are universal**, any constraint we invoke for the analysis of one language is automatically predicted to be included in the constraint set of every language. Therefore, when we propose a new constraint, it is important to think about what **cross-linguistic predictions** we are making by putting that constraint into the universal constraint set.

One way of looking at the predictions of a certain set of constraints is to examine the **factorial typology** of that set of constraints. The factorial typology of a set of constraints is **all possible rankings** of those constraints.

The name *factorial typology* comes from the fact that if we have n constraints, there are $n!$ (" n factorial") ways to rank them. Recall that $n! = (n) * (n-1) * (n-2) * \dots * 1$.

For an example of factorial typology, see the six different rankings of the three constraints ($3! = 3*2*1 = 6$) NOEPENTHESIS, NOCODA, and ONSET in the discussion exercise "Constraint rankings and their predictions." While these three constraints are only a small piece of the proposed universal constraint set, at least we can check to see that all of the predicted patterns do exist in actual languages.

It is a good idea to consider the factorial typology of any new constraint you are proposing, with respect to similar "sample constraint sets" of relevant competing constraints. If your new constraint seems to predict patterns that do not occur, it might be wise to try proposing a different kind of new constraint. For example, as we saw in class, it would be a bad idea to propose a constraint HAVECODA, because this would predict the existence of languages in which a coda is mandatory for all syllables.

(On the other hand, even well-motivated constraints sometimes make more factorial-typology predictions than are actually observed in natural language. Situations like this are interesting areas of research — sometimes there are explanations from historical linguistics or the phonetics/phonology interface for why certain predicted patterns are missing.)