Paradoxes of MaxEnt markedness
Arto Anttila (Stanford) and Giorgio Magri (CNRS)

MAIN RESULT

- Markedness implications: voiced velars are more marked than voiceless velars
  rounded vowels are more marked than unrounded vowels
- In probabilistic phonology, a markedness implication means that the following inequality holds across all grammars in the typology, without exceptions:
  \[ \text{probability of the faithful realization of the more marked form} \leq \text{probability of the faithful realization of the less marked form} \]
- You can compute the (markedness) implications predicted by your own ME grammar using CoGeTo!
- ME misses most markedness implications because they must obey the following paradoxical generalization:

**Suppose that ME predicts a markedness implication. For any markedness constraint \( M \) that is not violated by the two forms compared:**

- **if** the more marked form can be transformed into a candidate that violates \( M \) by violating only one faithfulness constraint \( F \) only once,
- **then** the less marked form can be transformed into a candidate that violates \( M \) by violating only that faithfulness constraint \( F \) only once.

PARADOXES OF VOICING AND ASPIRATION

- The generalization that fricatives (\( B \)) are more marked than stops (\( b \)) is lost because of a markedness constraint against nasal fricatives (\( \tilde{z}, \tilde{B} \)).
- The generalization that back rounded non-high vowels (\( o \)) are more marked (de Lacy 2006) than front unrounded high vowels (\( i \)) is lost because of a markedness constraint (RoFro; Kaun 2004) against rounded front vowels (\( y, \varnothing \)).
- The generalization that voiced velar stops (\( g \)) are more marked than voiceless ones (\( k \)) is lost because of a markedness constraint against voiced geminates (\( g, d \)).

PARADOXES EVERYWHERE

- The generalization that fricatives (\( \beta \)) are more marked than stops (\( b \)) is lost because of a markedness constraint against nasal fricatives (\( \tilde{z}, \tilde{\beta} \)).