Violations are ranked, not constraints:
A revised model of constraint interaction in phonology

Edward Flemming
Massachusetts Institute of Technology

One of the fundamental insights of Optimality Theory is that phonology operates in terms of conflicting, violable constraints. This perspective raises the basic question of how conflicts between constraints are adjudicated – how is the optimal candidate identified, given that no candidate satisfies all of the constraints? I will present evidence for two general characteristics of constraint interaction in phonology: (i) Compromise: one constraint can be balanced against another, yielding a compromise between their conflicting demands. For example, conflicts between constraints favoring effort minimization and maximization of the perceptual distinctiveness of contrasts generally yield moderate distinctiveness in exchange for moderate effort, i.e. partial violation of each constraint. (ii) Constraint violations form a strict domination hierarchy (cf. Prince and Smolensky 1993): if a particular level of violation of constraint C1 is worse than individual violations of constraints C2-Cn then that violation of constraint C1 is worse than a combination of all of the violations of constraints C2-Cn.

Current models of constraint interaction, standard OT (Prince& Smolensky 1993) and Harmonic Grammar (Legendre& Smolensky 2006, Pater 2009), each derives only one of these characteristics. Standard OT employs strict constraint domination, but as a result does not allow for compromise between constraints: if effort minimization ranks above maximization of distinctiveness then effort is minimized without regard for distinctiveness. Compromise can only be accommodated by decomposing gradient constraints into constraint hierarchies. Harmonic Grammar can derive compromise between constraints but does so by positing that candidates are evaluated in terms of their summed constraint violations, so it does not have the strict domination property.

I will motivate a new model of constraint interaction which allows for compromise between constraints while preserving strict domination. The key is ranking constraint violations rather than constraints. In essence, constraint violations are ranked according to their magnitudes so a large violation of gradient constraint C1 can rank above a violation of constraint C2 while a lesser violation of C1 ranks below a violation of C2. This makes it possible to derive compromise between constraints, but violations are strictly ranked as in standard OT, so lower ranked violations cannot combine to outweigh a higher-ranked violation.