Reference-Set Computation = Minimalism +Tree Transformations?

Thomas Graf, Linguistik Kolloquium Bielefeld, 8.12.10

Reference-Set Constraints (aka transderivational constraints aka optimality conditions aka global economy conditions) formed an integral part of the early Minimalist Program. They differ from standard well-formedness conditions in that for every tree, they compute a set of output candidates called its reference set and pick from said set the optimal candidate(s) according to some economy metric. They have proven useful in the analysis of various phenomena, among others binding, quantifier scope, resumption, stress shift, and Principle B delay; nevertheless they have faded out of the syntactic mainstream over the years, due to concerns about computational (in)tractability. In this talk, I show that these concerns are unwarranted and that there are several advantages to reference-set computation.

I argue that reference-set constraints are best thought of as tree transducers. In linguistic terms, tree transducers are to trees as transformational rules are to strings, that is to say, they take an input tree and rewrite it as an output tree. Using this model, I show that reference-set constraints
1) in general aren't computationally intractable.
2) are but a different way of looking at standard well-formedness conditions.
3) have technical advantages over normal constraints in accounting for cross-linguistic variation.
4) exhibit close connections to optimality theory and synchronous grammar formalisms.

As an illustration of the applicability of this formal model, I give precise implementations of Focus Economy, Merge-over-Move, and Fewest Steps.